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bulletin

NEWS AND VIEWS IN THE BIOLOGICAL SCIENCES

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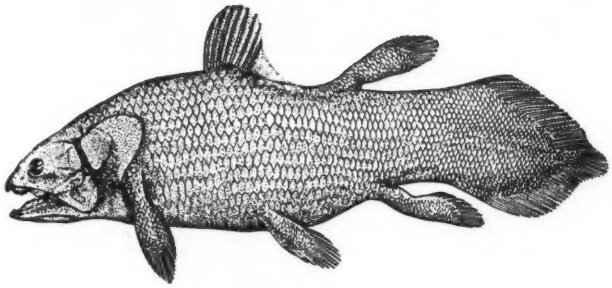

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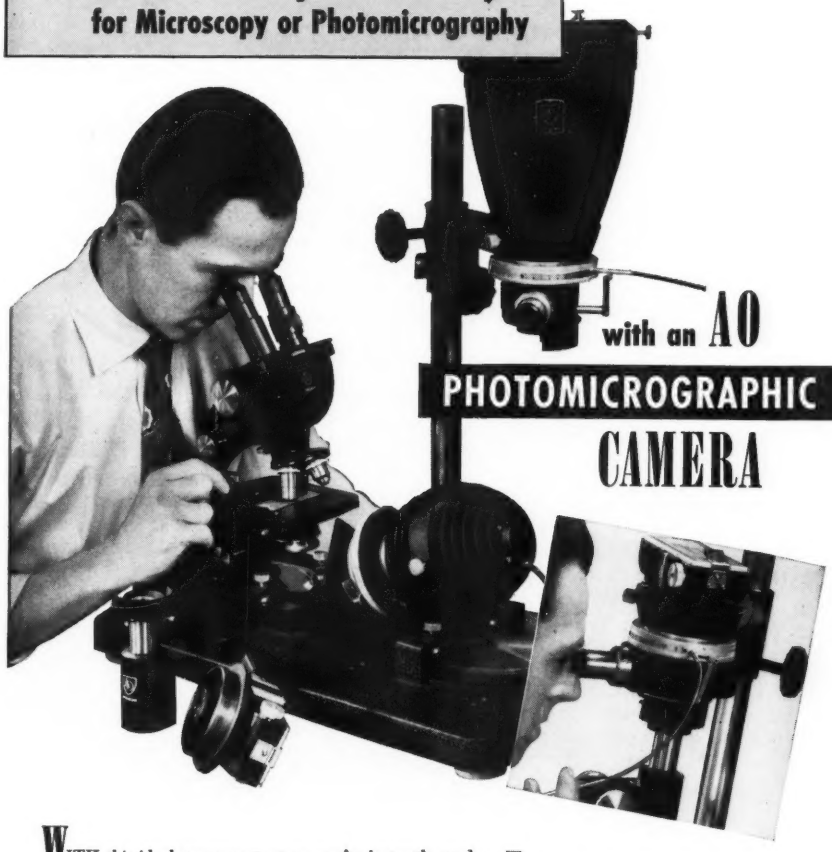

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Across the EDITOR'S DESK

• **Dr. L. O. Kunkel, of the Rockefeller Institute for Medical Research, will be Visiting Professor** in the Department of Plant Pathology at Cornell University during the month of March. During that time Dr. Kunkel will give a series of lectures and demonstrations on plant virus diseases. He will also be available for informal discussions and consultation on plant virology.

✤

• **The Twelfth Congress of the International Association of Limnology** will be held in Great Britain at Cambridge and Windermere from August 20-30, 1953. Sessions for the reading of papers will be grouped into two main sections dealing with "theoretical" and "applied" topics respectively. There will be a pre-congress excursion in Southern England and post-congress excursions to Scotland and Ireland. The Chairman is F. E. Fritsch, 34, Causewayside, Cambridge, and the Honorary Secretary is H. Cary Gilson, The Ferry House, Ambleside, Westmorland.

✤

• **The Fourteenth International Congress of Zoology** will be held in Copenhagen on August 5-12, 1953. A large number of sections have been organized so that members may meet their colleagues in fairly restricted fields. The following sections have been suggested but more may be established, depending on the topics of the communications offered by the members: Nomenclature; Paleozoology, Invertebrates; Paleozoology, Vertebrates; Quaternary Zoology; Zoogeography; Speciation; Genetics of Populations; Cytology; Submicroscopical Structure of Animals; Animal Regeneration; Morphogenesis; Animal Psychology and Ethology; Comparative Physiology; Parasitology; Nematology: Terrestrial Ecology; Marine Ecology; Entomology; Vertebrate Systematics; Invertebrate Systematics. Summaries of communications by members should be in the hands of the Secretariat not later than May 1, 1953. Dr. R. Spärck is President and Dr. Anton Fr. Bruun is Secretary General. The address of the Congress is: Krystalgade 27, Copenhagen K.

✤

• **The Office of International Relations of the National Research Council,** Dr. Wallace W. Atwood, Jr., Director, has recently received a **request from the Danish Embassy** in Washington to assist in extending an invitation to all zoological institutes in the United States to send representatives to the Fourteenth International Zoological Congress to be held in Copenhagen August 5-12, 1953. The Embassy request points out that "in this connection the term Zoological Institutes means any institute carrying out studies related to animals, such as universities, learned societies, institutes for agricultural science, forestry, ichthyologic science, etc."

✤

• During the month of February, **Dr. Gerald Thorne, Senior Nematologist of the U.S. Department of Agriculture,** gave a series of lecture demonstrations on plant parasitic and free living nematodes in the Plant Pathology Department at Cornell University. Methods of isolation from soil, laboratory techniques in preparing permanent mounts, and determination of "Types of crop losses caused by nematodes," "Root infesting nematodes," "Stem infesting nematodes," "Nemas attacking plants above the roots," "Root-lesion and related nematodes," and "Ectoparasitic nematodes." A public lecture was given on February 19 on the subject, "Plant parasitic nematodes in our agricultural economy."

✤

• **The Third Annual Wildflower Pilgrimage** in the Great Smoky Mountains National Park is scheduled to be held on April 23-25, 1953. The project is sponsored by the Department of Botany, The University of Tennessee; the National Park Service; and the Gatlinburg, Tennessee, Chamber of Commerce.

✤

• **The Fifth International Congress of Tropical Medicine and Malaria** will be held at Istanbul, Turkey, from August 28 to September 4, 1953. Reports on malaria will deal with parasitology—epidemiology—premunition; pathology—pathogenesis—blackwater fever; treatment and chemoprophylaxis; entomology and control of vectors. Reports on tropical medicine will be concerned with schistosomiasis; filariasis; nutrition; trypanosomiasis; and virus diseases. For further information address the General Secretary: Professor Dr. Ihsan Sükrü Aksel, Tunel Meydani, Beyoglu, Istanbul, Turkey.

✤

• **The Third International Biometric Conference** will be held at Bellagio, Italy, on September 1-5, 1953, under the sponsorship of the Biometric Society, a Section of the International Union of Biological Sciences. Ten half-day sessions are planned for the following subjects: training in biometry, mathematical problems in genetics, industrial applications of experimental designs, agricultural designs, public health and social medicine, biological assay with special reference to immunology, biometrical problems in ecology, functional relations in experimentation, methodological problems in biometry, and sequential experimentation. Since little time will remain for contributed papers, communications from members may be presented in the form of exhibits of mounted charts, photographs, etc. Full information concerning each contributed paper or exhibit should reach the Secretary of the Conference before April 30, 1953, including the title, a summary in English of 200 words or less, and details of the room and facilities required for the demonstration. The Executive Secretary of the Conference is Dr. L. L. Cavalli-Sforza, Instituto Sieroterapico Milanese, Via Darwin 20, Milano, Italy.

✤

• As a contribution to the meeting of the British Association for the Advancement of Science to be held in Liverpool on September 2-9, 1953, Imperial Chemical Industries Limited, **publishers of the quarterly scientific review *Endeavour*, have offered the sum of 100 guineas to be awarded as prizes for essays submitted on a scientific subject.** As the primary purpose of these awards is to stimulate younger scientists to take an interest in the work of the British Association and to raise the literary standard of scientific writing, the competition is restricted to those whose twenty-fifth birthday falls on or after June 1, 1953. Five prizes will be awarded: a first prize of 50 guineas; a second prize of 25 guineas; a third prize of 15 guineas; and two special prizes of 5 guineas for competitors who have not passed their eighteenth birthday on June 1, 1953. The subjects for the essays are: (1) Radio-Astronomy; (2) Colour and Chemistry; (3) Biology in World Affairs; (4) Science and Safety in Transport; (5) Science and Art; (6) Scientific Contributions to Medicine; (7) Scientific Societies and their Role; (8) Power and Civilization. The essays, which must be in English and typewritten, should

not exceed 4,000 words in length, and only one entry is permitted from each competitor. All entries should be addressed to: The Assistant Secretary, British Association for the Advancement of Science, Burlington House, Piccadilly, London, W.1. and the envelope should be clearly marked "Endeavour Prize Essay." The latest date for receipt of entries is June 1, 1953.

✣

• ***Elytron*, a monthly news letter for Coleopterists,** is now being published by Sherwood House, Publishers, P.O. Box 855, Washington 4, D. C. It is sent free to subscribers to *The Coleopterists' Bulletin* and for $1.00 a year to all others.

✣

• **The list of individuals receiving National Science Foundation research grants,** announced January 16, 1953, included the following biologists: M. S. McKeehan (University of Virginia); J. P. Trinkaus (Yale University); J. H. Ryther (Woods Hole Oceanographic Institution); J. R. Raper and J. P. San Antonio (University of Chicago); D. L. Nanney (University of Michigan); D. M. Reynolds (University of California, Davis); W. A. Wood (University of Illinois); E. D. Weinberg (Indiana University); V. M. Cutter, Jr. (University of North Carolina); Jack Myers (University of Texas); H. P. Treffers (Yale University); A. L. Black (University of California, Berkeley); R. E. Koeppe (University of Tennessee, Memphis); J. S. Fruton (Yale University); P. Feigelson (Antioch College); C. H. Sawyer (University of California, Berkeley); W. R. Breneman (Indiana University); H. Borei (University of Pennsylvania); D. J. O'Kane (University of Pennsylvania); J. R. Brobeck (University of Pennsylvania); H. Beevers (Purdue Research Foundation); P. F. Scholander (Woods Hole Oceanographic Institution); R. E. Blackwelder (Society of Systematic Zoology); Ruth Patrick (Academy of Natural Sciences of Philadelphia); J. L. Gressitt (Bishop Museum, Honolulu); J. S. Karling (Purdue Research Foundation); A. C. Smith (Smithsonian Institution); J. F. Macdonald (South Dakota School of Mines and Technology); L. R. Hesler (University of Tennessee, Knoxville).

✣

• **An interesting series of courses in Acarology** is to be made available at Duke University during the coming summer session. The courses will be concerned with general, medical and veterinary, and agricultural Acarology and are designed for professional entomologists, parasitologists, agriculturalists, and zoologists in academic and applied fields as well as far advanced students in those fields. Additional information may be obtained from G. W. Wharton, Department of Zoology, Duke University, Durham, North Carolina.

✣

• **The Eleventh Meeting of the International Union of Biological Sciences** will be held in Nice, France, on August 17-21, 1953. The General Secretary is Professor P. Vayssiere, Museum National d'Histoire naturelle, 57 rue Cuvier, Paris, France.

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• **Paul Weiss,** of the University of Chicago, has been named Vice-President and Chairman of Section F (Zoological Sciences) and **Edgar Anderson,** of the Missouri Botanical Garden, Vice-President and Chairman of Section G (Botanical Sciences) of the AAAS.

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• **The Eighth Pacific Science Congress** of the Pacific Science Association will be held on the campus of the University of the Philippines, Quezon City, Philippines, from November 16 to 28, 1953. In planning the scientific program, the Organizing Committee is giving careful consideration to the objectives of the Pacific Science Association, viz. "to initiate and promote cooperation in the study of scientific problems that affect the prosperity of the Pacific Peoples." All communications concerning the Congress should be addressed: The Secretary-General, Eighth Pacific Science Congress, National Research Council of the Philippines, Quezon City, Philippines.

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• **Plans for the construction of an oceanographic laboratory at Woods Hole,** Falmouth, Barnstable County, Massachusetts, were announced during November **by the Department of the Navy.** The new building will be Navy-owned, but contract operated. The purpose of the laboratory will be to perform oceanographic research, primarily of vital interest to the Office of Naval Research and the Navy Bureau of Ships. Building of the new laboratory was proposed early in 1951 by Rear Admiral C. M. Bolster, Chief of Naval Research, to "meet the Navy's urgent need for important oceanographic research."

Construction of the modern, three-story, concrete-frame, brick-faced building, with a floor space of 26,000 square feet, will begin shortly after January 1, 1953. Funds for the construction of the new laboratory were appropriated by Congress in June 1952 as part of the Department of Defense budget for defense construction. Plans and specifications for the construction of the new laboratory were made available November 24, 1952. Bids from contractors have been solicited. The new building will be located on a one-acre tract of land formerly owned by the Marine Biological Laboratory and immediately adjacent to the Woods Hole Oceanographic Institution at Woods Hole, Massachusetts.

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• **"How to preserve an area"** is the title of a bulletin issued by the Nature Conservancy as a service to landowners who want to preserve natural conditions on their property. It discusses the problems of assuring continuing protection for an area that is to be preserved.

The bulletin commences with an analysis of "What are your objectives?" and goes on to discuss types of preservation, requirements for assuring perpetuation of a nature reserve, custodial agreements, buffer areas, preservation under private ownership, and management policies for natural area preserves. The Conservancy stresses three essential requirements for assuring preservation of a nature reserve: 1) management under a stated policy of preservation, 2) assurance of continuing control by a permanent organization, and 3) assurance of continuing maintenance funds from endowment or other source. It discusses the value of buffer areas and the need for careful planning to assure perpetual protection of a proposed nature reserve.

Copies may be obtained from the Nature Conservancy, 1840 Mintwood Place N. W., Washington 9, D. C.

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• **The Oberly Memorial Award,** given every two years to the American citizen who compiles the best bibliography in the field of agriculture or related sciences, will be made in 1953. The awards committee welcomes entries of bibliographies issued during the calendar years 1951 and 1952. Seven copies of each bibliography, accompanied by a letter stating that it is being submitted for competition in the award, should be addressed to the chairman of the committee, D. A. Brown, Agriculture Library, Mumford Hall, University of Illinois, Urbana, Illinois. Copies will be returned to owners if so requested. Closing date for entries is April 15, 1953.

The winning bibliography will be announced at the American Library Association's Annual Conference in Los Angeles in June. The award, consisting of income from a memorial

fund established in memory of Eunice Rockwood Oberly, will be presented to the bibliographer at that time.

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• **The annual meeting of the Radiation Research Society** will be held at the State University of Iowa, Iowa City, on June 22-24, 1953. The Society will be the guest of the University and all meetings will be held on the campus. The program will consist of: (1) Two symposia, one on "The Effects of Radiation on Aqueous Solutions" and includes the following speakers: E. S. G. Barron, Edwin J. Hart, Warren Garrison, J. L. Magee, and A. O. Allen. The second is "Physical Measurements for Radiobiology" and companion talks by Ugo Fano, Burton J. Meyer, G. Failla, L. D. Marinelli, and Payne S. Harris. (2) On Monday night, June 22, a lecture by Dr. L. W. Alvarez on meson physics has been tentatively scheduled. On Tuesday night, June 23, Dr. L. H. Gray of the Hammersmith Hospital, London will speak on a topic to be announced. Dr. Gray's lecture is sponsored by the Iowa Branch of the American Cancer Society. Those desiring to report original research in radiation effects, or interested in attending or desiring additional information, please contact the Secretary of the Society, Dr. A. Edelmann, Biology Department, Brookhaven National Laboratory, Upton, L. I., New York.

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• **The Eighteenth Cold Spring Harbor Symposium on Quantitative Biology** will be held June 5 to 11. The topic of the meetings will be "Viruses." Emphasis will be on discussion of the quantitative aspects of virus research, particularly research with bacterial viruses. The program will take up the following problems: virus in the vegetative state and its maturation, provirus, the transition from provirus to vegetative virus, the transition from the infective to the vegetative state, structure of viruses, biochemical studies of virus infections, host-controlled variations of viruses, and viruses in tissue culture. Participants from abroad will include: J. C. Appleby, W. Hayes, R. Markham, and F. K. Sanders from England; F. Jacob and A. Lwoff from France; and W. Weidel from Germany. For programs and information, address the Biological Laboratory, Cold Spring Harbor, New York.

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• **The Biological Laboratory at Cold Spring Harbor** is offering three specialized summer courses, designed to acquaint research workers with the most important techniques used in bacterial virus research, microbial cytology, and bacterial genetics. The course on *Bacterial Viruses* will be held from June 22 to July 11, with Dr. Mark H. Adams of New York University in charge: *Cytology of Microorganisms* also will be given from June 22 to July 11, under Dr. E. D. DeLamater of the University of Pennsylvania; and *Bacterial Genetics* will be conducted from July 15 to August 4 by Drs. E. M. Witkin, V. Bryson, M. Demerec, and staff. Information about these courses may be obtained from the Biological Laboratory, Cold Spring Harbor, New York.

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• **The Tissue Culture Association is again sponsoring a course** of instruction in the principles and techniques of cell and tissue culture. The course will be under the direction of Dr. John H. Hanks, The Leonard Wood Memorial, Harvard Medical School, and will be given in the laboratories of the Mary Imogene Bassett Hospital, Cooperstown, N. Y. It will start on July 8 and end on July 30. Tuition will be $100.00.

The five basic methods of cell culture are employed in the laboratory work. The morning work includes a review of the principles and techniques pertaining to the main event of the laboratory work, and a demonstration of the procedures to be used. Each participant prepares and manages his own cell cultures. Afternoons afford opportunity for library work and for consultation with the staff concerning the projects contemplated by each of the class members. Evening lectures to broaden horizons are given by members of the staff and by distinguished guest lecturers.

The course is designed specifically for post graduates (M.D. or Ph.D.) who plan to use cultured tissues in their research or teaching. Requests for application forms should be addressed to Dr. Mary S. Parshley, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y., and should be completed and returned to her not later than April 15th. Successful candidates will be notified about May 1st.

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• Biologists should be interested in an opportunity to secure some of the classical American papers on invertebrates at the cost of mailing and handling. Because of storage costs, The Johns Hopkins Press must dispose of its remaining stock of the **Memoirs from the Biological Laboratory of The Johns Hopkins University.** If there are no biological takers, the supplies will be destroyed. The available items include such notable papers as the monograph of the genus *Salpa*, by W. K. Brooks; the collected physiological papers of H. Newell Martin; monographs on the Cubomedusae (F. S. Conant), *Synapta vivipara* (H. L. Clark), *Yoldia limatula* (G. A. Drew), the physiology and histology of the Cubomedusae (E. W. Berger), *Ophiura brevispina* (Caswell Grave), and *Cassiopea xamachana* (R. P. Bigelow); on the anatomy of *Nautilus pompilius* (L. E. Griffin), and on the West Indian madreporian polyps (J. E. Duerden). Some of these are also available in separate form. The plates illustrating these monographs are among the finest which have ever been published in the United States. Many are in color.

Available:

Vol. II. The Genus Salpa, by William K. Brooks; with a supplementary paper by Maynard M. Metcalf. 1893. 396 pp.; 57 plates. 9 x 12. 78 copies, folded and collated but unbound (orig. cost $7.50) . . . . $1.00.

Vol. III. The Collected Physiological Papers of Professor H. Newell Martin. 1895. 264 pp. 9 x 12. 11 copies, cloth (orig. cost $10.00) . . . . $1.00.

Vol. IV. Selected Morphological Monographs, by Franklin Story Conant, Hubert Lyman Clark, Gilman Arthur Drew, Edmund William Berger, Caswell Grave, and Robert Payne Bigelow. 1900. 235 pp.; 38 plates. 9 x 12. 1 copy (cloth) and 23 copies (paper), (Orig. cost $7.50) . . . $1.00. Separates of the monographs by Grave (4 copies, cloth), Berger (56 copies, cloth), Conant (25 copies, cloth) and Clark (13 copies, paper) are available at 50 cents each.

Vol. V. Selected Morphological Monographs, by Lawrence Edmonds Griffin and James Edwin Duerden. 1903. 594 pp.; 42 plates. 9 x 12. 6 copies, cloth (orig. cost $5.00) $1.00.

Observations on the Embryology of Insects and Arachnids, by Adam Todd Bruce. 1887. 31 pp.; 6 plates. 9 x 12. 37 copies (cloth), 51 copies (paper) . . . . 50 cents each.

Orders should be addressed to: The Johns Hopkins Press, Baltimore 18, Maryland, and will be accepted through May 31, 1953.

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• **The 14th annual meeting of the Association of Southeastern Biologists** will be held at the University of North Carolina, Chapel Hill, according to an announcement by Dr. Margaret Hess, President of the Association. The meeting dates will be April 16-18, 1953.

Plans are under way for a symposium of interest to Southeastern biologists, scheduled for Thursday evening, April 16th, prior to the main meeting for presentation of research papers. On Friday evening, April 17th, the dinner meeting of the Association will be addressed by Professor L. C. Dunn of Columbia University, author and investigator in the fields of genetics and human inheritance.

• **A Conference on Biological Education** (see picture on page 29) was held at the National Academy of Sciences-National Research Council Building, Washington, D. C. on March 10, 1953. The participants were called together by Paul Weiss, Chairman of the Division of Biology and Agriculture, for a consideration of various aspects of that subject. Leonard Carmichael, Secretary of the Smithsonian Institution, served as Chairman of the Conference. Such topics as the sources of information on biological education, the agencies concerned with educational problems in biology, the objectives of biological education, the adjustments in biological education required to meet changing trends in biological thought, and problems of manpower and recruitment in the biological sciences were discussed.

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• At a recent meeting of the Executive Committee of the AIBS, the recruitment of outstanding students into biology was given careful study. It was agreed that there are two important aspects of vocational guidance: information and inspiration. As a contribution to the latter, we are inviting certain leaders in the field of biology to prepare brief, inspirational articles for publication as **"guest editorials" in the AIBS BULLETIN.** The articles will be printed as "tear sheets" so they can be removed from the *Bulletin* and put in the hands of high school and college students who might thus be interested in becoming biologists. The first such "guest editorial" will appear in the July, 1953 issue of the *Bulletin*.

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• A second notice concerning the **IX International Congress of Genetics,** which will be held at Ballagio, Italy from August 24-31, 1953, has been received in the AIBS office. Two types of meetings will be organized; general and special session, that will be held in the mornings and afternoons. Evenings will be free for informal meetings for which the organizing committee will provide facilities but for which it is not responsible. Titles of communications to be given in the special sessions, together with a short summary and titles of exhibits, should reach the Secretary, C. Barigozzi, Instituto di Genetica, Via Celoria, 10, Milano, Italy, before the 1st of May, 1953. Presentation of data in the form of exhibits is strongly recommended. Two post-congress tours, of both scientific and touristic interest, have been arranged. One will go to Milan, Pavia, Bologna, Florence, Rome and Naples and the other to Milan, Pavia, Turin, and National Parc of Gran Paradiso.

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• **Laboratory Conference for Teachers of Science and Mathematics.** During the Summer Session of 1953, Duke University with the cooperation of the North Carolina Department of Public Instruction will combine the Science Teachers Laboratory Conference and the Institute for Teachers of Mathematics to form a new conference. The combination of these two successful programs will open to secondary school teachers a unique opportunity for further training in mathematics and science. The first Laboratory Conference for Teachers of Science and Mathematics will be held at Duke University, July 20-24, inclusive.

The basic purposes of the Laboratory Conference is to present practical and useful methods or experiments that may be used in the classroom. Training in the techniques involved in the setting up and execution of these methods or experiments will be emphasized and practiced by the participants in the program. The program of the Conference will represent an integrated course planned and conducted by the Departments of Botany, Chemistry, Mathematics, Physics, and Zoology.

From the SOCIETIES

• James W. Moffett, of the U.S. Fish and Wildlife Service, Ann Arbor, Michigan was elected Vice-President of the **American Society of Limnology and Oceanography** at the annual meeting of the Society in September, 1952. His name had been omitted from a previous listing in the *Bulletin* of officers of the Society. Officers elected for the Pacific Section of the Society were: President: C. A. Barnes; Vice-President: William M. Cameron; Secretary-Treasurer: George L. Pickard.

• Officers of the **American Society of Plant Taxonomists** for 1953 are: President: Robert E. Woodson, Jr.; Chairman of the Council: David D. Keck; Treasurer: Richard A. Howard; Secretary: Reed C. Rollins, Gray Herbarium, 79 Garden Street, Cambridge 38, Mass.

• The 1952 Research Award offered by **Sigma Delta Epsilon,** Graduate Women's Scientific Fraternity, for the best research paper submitted by a member, was granted Dr. Leila A. Dragonette, currently Research Associate in the Department of Mathematics of the University of Chicago. Her paper was "Some Asymptotic Formulae for the Mock Theta Series of Ramanujan." Honorable mention was given to Margaret R. Murley, of Northwestern University for her paper "Seeds of the Cruciferae of Northeastern North America" and to Dr. Lela Barton, of the Boyce Thompson Institute for her paper "Relation of Different Gases to the Soaking Injury of Seeds. II."

The National Officers of Sigma Delta Epsilon for 1953 are: President: Mildred A. Engelbrecht; First Vice-President: Mary Keeffe; Second Vice-President: Gladys Everson; Treasurer: Mrs. Richard Lewis; Secretary: Hellen Linksweiler, University of Alabama, University, Alabama.

• **The Society of American Bacteriologists** elected the following officers for 1953: President: Gail M. Dack; Vice-President: Cornelis B. van Niel; Secretary-Treasurer: John Hays Bailey, Sterling-Winthrop Research Institute, Rennsselaer, N. Y.

• At its 53rd Annual Convention in St. Louis on December 29, 1952 Dr. L. J. Stadler, of the University of Missouri, was elected National President of the **Society of Sigma Xi.**

• Dr. Fred Orcutt, Virginia Polytechnic Institute, Blacksburg, Virginia, is now Secretary of the **Phi Sigma Society,** national biological honorary society. Dr. Karl Lagler, Department of Fisheries, School of Natural Resources, University of Michigan, is Chancellor of Phi Sigma, an office equivalent to that of President in other societies.

• **The Twelfth Annual Symposium of the Society for the Study of Development and Growth** will be held at the University of New Hampshire in Durham, N. H. on June 19-22, 1953. Registration will take place in the afternoon and evening of June 18th.

• **The Ecological Society of America** has for distribution reprints of the following symposia sponsored by the Society: "The Glacial Border Symposium"—40¢, and the "Pine Barrens Symposium"—$1.00. M. F. Buell, Secretary, Rutgers University, New Brunswick, N. J.

• The **Ecological Society of America,** in its business meeting on September 2, 1952 at Ithaca, N. Y., **decided to dedicate a number of *Ecology* to Dr. F. E. Clements** in honor of his contributions to the field of ecology. These contributions have had a great impact upon forestry, range management, wild life management, conservation, and other allied fields. A committee has been organized to invite competent ecologists to submit papers, which will be published in a memorial number. It is hoped that enough funds can be raised so that an extra number of *Ecology* can be published during 1953. Contributions of all who wish to participate in honoring Frederick E. Clements are solicited. Contributions should be sent to Dr. F. H. Test, Treasurer, Ecological Society of America, University of Michigan, Ann Arbor, Michigan, marking them "For Clements Number of *Ecology*." Herbert C. Hanson is Chairman of the Committee for the Clements Memorial.

The A·I·B·Scope

• Recently appointed members of the AIBS **Committee on the Handbook of Biological Data** are: Royal E. Shanks, Department of Botany, University of Tennessee, and Oswald Tippo, Chairman, Department of Botany, University of Illinois.

• **The Advisory Committee on Biology to the Office of Naval Research** met February 19th in Honolulu, Hawaii and considered about thirty proposals on their scientific merit. This committee is under the chairmanship of Dr. Max Kleiber of the University of California.

The Advisory Committee on Hydrobiology to the Office of Naval Research met on February 20th, also in Honolulu, Hawai and laid plans for the completion of the work on the directory of hydrobiological stations and personnel. This group, under the direction of Dr. Robert Hiatt of the University of Hawaii, hopes to have this volume ready for distribution during the summer of 1953.

On February 21st both groups toured the facilities of the Hawaii Marine Laboratory at Coconut Island and visited there with the members of the staffs of several departments of the University of Hawaii.

• During the time of the meetings of the **Advisory Committees on Biology and Hydrobiology** in Hawaii, several of the visitors from the mainland addressed groups of faculty and students at the University of Hawaii. Arthur D. Hasler addressed the University of Hawaii Chapter of the Society of the Sigma Xi on the subject "Do salmon smell their way home?" Max Kleiber spoke to a seminar group on "Isotopes, a new tool in research on animal metabolism and nutrition." Gordon A. Riley talked to a joint marine sciences seminar composed of representatives of the University and of the Pacific Oceanic Fishery Investigations on "Organic productivity in the sea." William Ricker discussed "The nature of fishery research in Canada" at an informal meeting of marine scientists. S. L. Meyer talked to the graduate students and staff in the biological and agricultural sciences on "The organization, objectives, and program of the AIBS" and to a plant physiology seminar group on "Physiological studies on mosses."

• At a meeting in Washington on March 3, 1953, the incorporators of the **Scientific Manpower Commission** elected F. P. Cullinan and J. S. Nicholas, nominees of the AIBS, to membership on the Commission.

• At its recent meeting in Washington, the Executive Committee approved the acceptance of **The American Genetic Association as an affiliate of the AIBS.** The American Genetic Association, an incorporated organization devoted to promoting a knowledge of the laws of heredity and their application to the improvement of plants, animals, and human racial stocks" was founded in 1903. It has about 1,900 members. Officers of the Association are: Honorary President Emeritus, David Fairchild; Honorary Vice-President, W. E. Castle; President, Ronald Bamford; Vice-President, H. H. Plough; Secretary, Walter E. Heston; Treasurer, Haig Derman; Editor of *The Journal of Heredity*, Robert C. Cooke; Managing Editor of *The Journal of Heredity*, Barbara Lake.

• At its meeting on February 9th, the Executive Committee of the AIBS approved the admission of the **General Biological Supply House, Inc.,** 761-763 East 69th Place, Chicago 37, Illinois, as **an Associate of the American Institute of Biological Sciences.** One of the oldest supply houses in the country, General Biological Supply began in 1914 through the efforts of Dr. Morris M. Wells of the Zoology Department of the University of Chicago. Dr. Wells was concerned with the lack of a commercial supply source for biological material and attempted to remedy this situation by making slides in his spare time. Within a few years the demand for Dr. Well's material had reached such proportions that he devoted his full time to the growing mail-order house. Turtox News was begun as a monthly publication in 1923 and today it is mailed without charge to over 50,000 teachers. Today General Biological Supply House maintains departments for the following materials: preserved, embalmed and injected specimens, prepared skeletons, plastic mounts, rubber models, live cultures and specimens, microscope slides, charts and Kodochromes. The President of General Biological Supply House is Mr. Blair Coursen.

• Mr. John L. Dusseau, Managing Editor of the W. B. Saunders Company, has written the following to Dr. Errett C. Albritton, Editor of *The Handbook of Biological Data* (January 29, 1953): "I believe ***Standard Values in Blood*** is finding enthusiastic reception as a reference tool in hematologic and biochemical research. It is not, however, selling to undergraduate medical students. For this reason, the sales to date have not been great. Up to January 1, 1953, we have sold 866 copies of the book. I do not know how this record of sale will be received by the Handbook Committee, but here at Saunders we regard it as a good one."

• **The AIBS Associates Committee** met in Washington on February 10, 1953. Those present included: J. C. Walker, *Chairman*, Kenneth B. Raper, Blanton Bruner, T. C. Byerly, Ruth E. Rue and S. L. Meyer. The three principle topics on the agenda were: consideration of plans for enlisting more AIBS members of Associate status; plans for a symposium on biology and industry at the Madison meeting in September, 1953; and ways and means of keeping available personnel in touch with opportunities in industry.

• **Membership of Marston Bates,** Department of Zoology, University of Michigan, on the AIBS Membership Committee has been transferred to the Publications Committee.

• **Dr. Katherine Esau,** Department of Botany, University of California, Davis, at the invitation of Dr. T. C. Byerly, Chairman of the Governing Board, represented the AIBS at the **inauguration of Dr. Clark Kerr as Chancellor, Berkeley Campus, University of California,** on March 23, 1953.

• **The Institute of Animal Resources,** a committee operating under the AIBS, has recently been established. This is an outgrowth of a series of conferences sponsored by the Division of Biology and Agriculture, National Research Council, in which the need was recognized for an agency to coordinate the work of producers and distributors of laboratory animals used in scientific research and testing, and the institutions engaged in such work. It is the purpose of this committee to aid in setting up standards for animals used in research, locating specialized strains, assisting in the development of new strains as needs arise, and disseminating this information for the use of those working in this field. Dr. C. C. Little, of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, is Chairman of the Committee which developed the plans for the Institute and Dr. O. N. Eaton, Animal Husbandman in the Office of Sheep and Goat Husbandry Investigation, Bureau of Animal Industry, U.S. Department of Agriculture, has been selected as the Executive Secretary of the Institute.

• The officers and members of the **Executive Committee of the AIBS** met in Washington on February 9, 1953. Those present were: T. C. Byerly, F. P. Cullinan, Donald Anderson, J. C. Walker, S. L. Meyer, and Paul Weiss, *ex officio.* The Committee heard reports of the Chairman of the Governing Board, the Executive Director, and the Convention Director. Topics discussed included: the Scientific Manpower Commission, the Scientific Roster, the Institute of Animal Resources, Biological Education and Guidance, Membership Possibilities, the Handbook of Biological Data, and Future Financial Support.

• Ileen E. Stewart and S. L. Meyer represented the AIBS at the **North American Wildlife Conference** sponsored by the Wildlife Management Institute and held in Washington on March 9-11, 1953.

• **Dr. George W. Beadle,** Division of Biology, Kerckhoff Laboratories of Biology, **represented the AIBS at the inauguration of Dr. Raymond B. Allen** as Chancellor, Los Angeles Campus, University of California, on March 20, 1953.

The BIOLOGY LIBRARY

One copy of each publication submitted for listing should be sent to the Editor, The AIBS Bulletin, 2101 Constitution Avenue, Washington, D. C. Only books published within a year of receipt will be reviewed. Older books will be listed.

The Algae of Illinois. Lewis Hanford Tiffany and Max Edwin Britton. 407 pages. 1186 figures. The University of Chicago Press, 5750 Ellis Avenue, Chicago 37, Illinois. (1952) $10.00.

The authors of this addition to phycological literature have effectively bridged the gap between the modern comprehensive texts, which treat only general and higher taxonomic categories, and the definitive studies of species available only in monographs and other research papers. Each taxonomic category is discussed clearly and concisely with respect to structure, reproduction, pigmentation, and food synthesis. A descriptive synoptic key is provided for the major divisions and diagnostic keys using observable microscopic characteristics are included for the genera within each class and the species within each genus. Line drawings illustrate the various species. Designed as a research reference to the common freshwater algae of temperate climatic regions and as an aid to the beginning students of phycology, this comprehensive analysis of the algal flora of Illinois will be useful beyond the confines of that state.

American Health Directory. Henry Hatton. 96 pages. Public Affairs Press, 2153 Florida Avenue, Washington 8, D. C. (1952) $2.50.

This useful volume lists the names, addresses, and publications of all American societies concerned with health. It includes medical associations, special disease-fighting organizations, and professional medical and biological societies.

The Biology of Phosphorus. Edited by Lester F. Wolterink. 147 pages. Michigan State College Press, East Lansing, Michigan. (1952)

The papers which compose this book were presented at a symposium in general biology held at Michigan State College in April 1951. The authors and subjects are: G. Evelyn Hutchinson, "The Biogeochemistry of Phosphorus"; Harry G. Albaum, "The Role of Phosphorus in the Metabolism of Plants", "The Incorporation of Radiophosphorus during Growth"; Harold C. Hodge, "The Dynamic Role of the Skeleton as shown by Radioisotopes"; Jacob Sacks, "The Significance of the Phosphorylation Cycle in Intermediary Metabolism"; Henry A. Lardy, "The Role of Phosphate in Metabolic Control Mechanisms."

Experimental Embryology. Roberts Rugh. 480 pages, numerous line drawings and photographs. Burgess Publishing Company, 426 South 6th Street, Minneapolis, Minn. (Revised edition, 1948)

This laboratory guide is a compendium of data, directions and bibliography not generally found in textbooks, but information which is necessary in training the prospective experimental embryologist. Some 50 separate experimental procedures are included: the approach is entirely experimental, the subject matter is exclusively the embryo. Extensive illustrations show all stages in the development of amphibian, fish and chick embryos and most of the operations performed on these organisms. The book is meant to carry the student through about one and a half semesters.

Fifty Tropical Fruits of Nassau. Kendal and Julia Morton. 118 pages, 55 photographs. Text House (Florida), Inc., Coral Gables 34, Florida. (1946) $3.00.

This is a reissue of a popular book on the exotic and indigenous tropical fruits commonly found in the gardens of the Bahamas and Southern Florida. The text is richly illustrated with large photographs, which show each fruit, whole or cut open, illustrating the form, seeds, and flesh structure. Descriptions, uses, and history of the fruits are given. This is a stimulating and valuable publication for all who would be well-informed concerning the fruits of the tropics.

General Zoology Laboratory Guide. James T. Tanner. 145 pages, 63 figures. Burgess Publishing Company, 426 South 6th Street, Minneapolis 15, Minn. (2nd edition, 1952) $2.50.

As a laboratory manual developed in connection with the course in general zoology at the University of Tennessee, this book covers a year course and is designed for the general college student. Directions, information, drawings, questions and problems are aimed at facilitating the learning process.

The contents are organized under the following headings: Biology of an Organism, The Frog; Organisms of Different Levels of Organization; Survey of the Animal Kingdom; Ecology; Cytology; Genetics; Evolution. A mimeographed "Instructors Supplement," listing materials and describing procedures, is available from the author upon request.

Genetic-Statistical and Psychiatric Investigations of a West Swedish Population. TORSTEN SJÖGREN. 102 pages. Ejnar Munksgaard, Nørregade 6, Copenhagen. (1948) 15 Danish crowns.

The author reports on an investigation of the occurrence of psychoses and oligophrenia during a relatively long period (1900 to 1944) in a geographically limited area, i.e., two islands on the west coast of Sweden. The object of the study was a thorough statistical and hereditary-biological analysis as well as a genealogical survey of the cases found. The author believes such investigations can be important because "they afford the possibilities of establishing the frequency of these disorders in an average population and of studying the onset and the mortality in such diseases. They also allow calculations of the morbidity risks and assessment of the need for institutional care, etc. If they are combined with investigations of the pedigree, it is also possible to study the risks of disease for various categories of relatives of the diseased persons."

The Human Senses. FRANK A. GELDARD. 365 pages, 104 figures. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. (1953) $5.00.

The author of this book is Professor of Psychology at the University of Virginia and since 1950 has been Chairman of the Human Resources Committee of the Research and Development Board under the Secretary of Defense. He has been interested in sensory psychology since his student days and in this volume has drawn together the concepts he believes indispensable to an understanding of this area of biology. Dr. Geldard treats each of the senses from the standpoint of the physics of stimuli and the anatomy and physiology of the sense organs. Sight, hearing, feeling, smell and taste are discussed in detail and their interaction, resulting in certain behavior patterns, traced. The chapters on the cutaneous senses (pressure, pain and temperature sensitivities) are especially valuable because this area is often neglected in psychological and physiological literature.

Insect Physiology. Edited by KENNETH D. ROEDER. 1100 pages, illustrated. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. (1953) $15.00.

The object of this book is to summarize and evaluate the major trends in experimental research on insects. Since the task was nearly impossible for a single author to accomplish, fifteen of the outstanding authorities in the field have contributed discussions. These writers freely express their individual views and conclusions as well as summarize the known information in the field. The book should serve physiology students as a source of information and an introduction to the diverse views, unsolved problems and opportunities of insect physiology; insect morphologists and systematists may find that the functional differences described suggest an expression of structural differences; applied entomologists may discover in the physiological point of view a fresh approach to the problems of insect control.

Introduction to Evolution. PAUL A. MOODY. 475 pages, illustrated. Harper & Brothers, 49 East 33rd Street, New York 16, N. Y. (1952) $6.00.

The author, who believes that an understanding of evolution should be part of the intellectual equipment of all educated persons, intends this book to be an introduction to the subject for all who have had little or no biology. The book is not an advanced textbook or reference manual on the subject. It is elementary in the best sense of the word. The main body of the text is concerned with the facts of evolution; this is preceded by two initial chapters on the theory of evolution. Plants are referred to from time to time in the account of the history of the earth but no discussion of plant evolution as such is included. The author, professor of natural history and zoology at the University of Vermont, felt it more suitable that he deal with zoological evolution and refer his readers to splendid, and detailed, books on plant evolution.

A Laboratory Manual of Vertebrate Embryology. ROBERTS RUGH. 234 pages, illustrated with diagrams and photographs. Burgess Publishing Company, 426 South 6th Street, Minneapolis 15, Minn. (1952) $2.50.

This laboratory manual is designed to instruct the college student in the fundamentals of embryology. Maturation, fertilization, and cleavage receive a general treatment with detailed studies of the embryology of the frog and chick. Section on Amphioxus and the fish are added for those interested in comparative embryology. A brief section on the embryology of the pig is appended as an introduction to mammalian embryology. A number of unlabelled diagrams and some photographs of living and preserved whole embryos are scattered throughout the text of the manual.

Mammals of Kansas. E. LENDELL COCKRUM. 303 pages. University of Kansas Publications, Museum of Natural History (Vol. 7), Lawrence, Kansas. (1952) Not for sale: for exchange.

The state of Kansas is the meeting ground of the Great Plains grassland fauna and the eastern, deciduous forest fauna. The result is that Kansas, although relatively uniform climatically and topographically, has more kinds of mammals than most states east of the Rocky Mountains. This study is aimed at producing a complete account of the mammals inhabiting the state and indicating factors affecting their distribution, variation and speciation. General information about the habits and economic importance of these animals is also provided.

Mammals of Utah. STEPHEN D. DURRANT. 549 pages. University of Kansas Publications, Museum of Natural History (Vol. 6), Lawrence, Kansas. (1952) Not for sale: for exchange.

A paper-bound volume, this compact treatise was written with the following aims in mind: to determine what kinds of mammals occur within the political confines of the state; to ascertain the geographic range of each kind and prepare distribution maps; to provide an adequate description, based on actual specimens, of each species of mammal found; to furnish keys from orders to species; to catalogue and evaluate taxonomically the extent of variation—individual, specific, subspecific and geographic; to show the effects of physiography upon speciation; and to present evidence, as regards time, on the rate of speciation in mammals.

A Manual of the Chiggers. G. W. WHARTON aided by H. S. FULLER. 185 pages, 17 figures. The Entomological Society of Washington, U. S. National Museum, Washington 25, D. C. (1952) $5.00.

To bring the pertinent information concerning chiggers (larvae of the trombiculid mites) into one volume is the aim of the author. The information has been drawn largely from

the extensive literature available but reports of original investigations, which fill previously existing gaps in the knowledge concerning these organisms, are included. The contents, following the introduction, include discussions of: Public Health; Behavior; Life Cycles; Anatomy; Classification of the Trombiculidae, and the Distribution of Trombiculids. The author points out that "It is hoped that this publication will stimulate other students to devote their energies to exhaustive studies of one or more of the groups of species." The manual will be most useful to investigators who need to become acquainted with chiggers rapidly.

Manual of the North American Smut Fungi. GEORGE WILLIAM FISCHER. 343 pages, 136 figures. The Ronald Press Company, 15 East 26th Street, New York 10, N. Y. (1953) $8.75.

This manual is a taxonomic treatment of the smut fungi (Ustilaginales) of the North American continent. The manual covers 22 genera, 276 species, and several varieties of smut fungi on species of 242 host genera. Its purpose is to enable the plant pathologist, agronomist, or mycologist to identify with reasonable certainty any of the presently recognized and classified smut fungi of North America. The book is organized to provide maximum utility. The genera and their species are arranged alphabetically for quick reference. A combination host index (by host genus) and key is an innovation designed for the quickest possible species determination.

The Microbiological Assay of the Vitamin B-Complex and Amino Acids. E. C. BARTON-WRIGHT. 179 pages, graphs and tables. Pitman Publishing Corporation, 2 West 45th Street, New York 19, N. Y. (1952) $4.00.

Dr. Barton-Wright presents in this small volume a concise handbook as well as an assessment of the biochemical analyses of two important groups of substances. The validity of microbiological assays is critically discussed and the methods of computation dealt with in detail. Each procedure is given with sufficient clarity for beginners to follow. References append each section and graphs and tables are freely interspersed with the text.

Microphthalmos and Anaphthalmos with or without Coincident Oligophrenia: A Clinical and Genetic-Statistical Study. TORSTEN SJÖGREN and TAGE LARSSON. 103 pages. Ejnar Munksgaard, Nørregade 6, Copenhagen. (1949) 15 Swedish crowns.

This study is concerned with certain forms of congenital blindness. In Sweden the registration of blind and deaf-mute children is particularly complete since their education takes place in special schools. Because of regulations requiring complete ophthalmological diagnoses, statistics are easy to obtain. The author's present study deals with both the clinical and hereditary aspects of these diseases.

Morbus Alzheimer and Morbus Pick: A Genetic, Clinical and Patho-anatomical Study. TORSTEN SJÖGREN, HAKON STOGREN and AKE G. H. LINDGREN. 152 pages. Fjnar Munksgaard, Nørregade 6, Copenhagen. (1952) 25 Swedish crowns.

The probands for this investigation were obtained from two sources: case-records of certain mental hospitals and histopathological brain protocols at several Swedish universities. Each of the three authors examines the evidence in his particular field and offers conclusions based on his particular set of data. Published in a paper-bound edition, this small book includes extensive tables, pedigrees, line drawings and anatomical photographs.

The Nature and Significance of the Antibody Response. Edited by A. M. PAPPENHEIMER, JR. 227 pages. Columbia University Press, 2960 Broadway, New York 27, N. Y. (1953) $5.00.

This outstanding group of papers represents an important contribution to the current ideas on the formation of antibodies, their nature and their role in allergic diseases. Seventeen recognized authorities in the field are contributors, each discussing his area of specialization. The papers were originally presented during a symposium sponsored by the Section on Microbiology, of the New York Academy of Science in 1951. One major contribution of the symposium was to demonstrate how fruitful the application of quantitative immunochemical methods could be in throwing light on the mechanisms of immunological reactions. Pertinent discussions, which followed the presentation of papers at the original meetings, have been included in many cases.

Phosphorus Metabolism. Vol. II. Edited by W. D. MCELROY and BENTLEY GLASS. 929 pages. The Johns Hopkins Press, Baltimore 18, Maryland. (1952) $11.00.

A second Symposium on Phosphorus Metabolism was held at The Johns Hopkins University, under the sponsorship of the McCollum-Pratt Institute in June 1952. This volume is composed of the papers and discussions presented at those meetings. The topics of the second symposium were chosen to summarize those major areas of phosphorus metabolism which were not covered during the first meeting. The seven general sections of discussion were: Mechanisms of Phosphate Assimilation, The Role of Phosphate in Amino Acid and Protein Metabolism, The Role of Phosphorus in the Metabolism of Lipids, The Chemistry and Metabolism of Nucleic Acids, The Role of Phosphate in the Metabolism of Photosynthetic Compounds as Intermediates in Photosynthesis, Influence of Hormones on Phosphate Metabolism, Phosphate Metabolism in Specialized Tissues.

Physiology of Seeds. WILLIAM CROCKER and LELA V. BARTON. 267 pages. The Chronica Botanica Company, Waltham, Mass., and Stechert-Hafner, Inc., New York City, N. Y. (1953) $6.50.

The subtitle describes this book as an introduction to the experimental study of seed and germination problems. Written by the late William Crocker, formerly Director, and Lela V. Barton, Plant Physiologist of the Boyce Thompson Institute for Plant Research, it emphasizes the recent progress in seed technology. The relationship of unsolved problems to established knowledge is developed. The book should be of value to all workers with seeds and seed technologists who are interested in fundamentals.

Plant Anatomy. KATHERINE ESAU. 734 pages, 311 illustrations. John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. (1953) $9.00.

Plant Anatomy offers professional botanists, plant anatomists, plant physiologists, and plant pathologists, as well as graduate students in various fields of plant science, a comprehensive and fully modern review of the anatomy of seed plants. The author, an outstanding teacher and investigator in this field, emphasizes the developmental aspects of plant anatomy "to enhance the understanding of plant structure and its variability." The contents are presented in an orthodox sequence using the following chapter headings: The Plant Body, The Protoplast, The Cell Wall, Meristems and Tissue Differentiation, Apical Meristems, The Vascular Cambium, The Epidermis, Parenchyma, Collenchyma, Sclerenchyma, Xylem, Phloem, Laticifers, The Periderm, The Stem, The Leaf, The Root, The Flower, The Fruit, The Seed. This book has been prepared with the same care and skill that characterizes Dr. Esau's research in plant anatomy.

400 Plants of South Florida. JULIA F. MORTON and R. BRUCE LEDIN. 134 pages, illustrated with 28 full-page drawings. Text House (Florida) Inc., Box 853, Coral Gables 34, Florida. (1952) $3.50.

This interestingly written, beautifully illustrated book describes the more common trees, shrubs, vines and herbaceous plants of South Florida, both native and introduced. The authors, Julia Morton, Vice-Director of the Morton Collectanea of the University of Miami, and Dr. R. Bruce Ledin, Assistant Horticulturalist at the Subtropical Experiment Station of the University of Florida, have the advantage of personal familiarity with the plants described. The drawings, by Dr. Frank D. Venning of the University of Miami, add to the value of the volume both in scientific accuracy and artistic appeal. This book is of much broader interest than its title would imply. It is of value to the professional botanist and horticulturalist, to the nurseryman, and to the amateur, all of whom share an interest in the bewildering variety of subtropical and tropical plants that occur in South Florida and areas of similar climate.

Pollen Morphology and Plant Taxonomy (Angiosperms). G. ERDTMAN. 539 pages, 261 illustrations. The Chronica Botanica Company, Waltham, Mass. (1952) $14.00.

Recognizing the complexity of the problems involved in so wide a subject as Angiosperm pollen morphology, the author has restricted himself to an introduction to a part of basic palynology (pollen and spore science), viz., "To an attempt to illustrate the main tenor of Angiosperm pollen morphology." After brief discussions of the contacts of palynology, pollen preparations, and pollen and spore morphology, the bulk of the book provides a series of short pollenmorphological descriptions of the families of Angiosperms, arranged alphabetically. A glossary and extensive bibliography are included.

Protein Metabolism, Hormones and Growth. A Symposium. Edited by WILLIAM H. COLE. 80 pages. Rutgers University Press, New Brunswick, New Jersey. (1953) $1.50.

The six lectures, presented under this title, were given at the Eighth Annual Conference on Protein Metabolism of the Bureau of Biological Research at Rutgers University (1952). The general subject of the conference was the relationships between protein metabolism and endocrine secretions. Each speaker presented some experimental results against the broad background of other contributions. Speakers were L. T. Samuels, James H. Leathem, Charles D. Kochakian, F. L. Engel, Jane A. Russell, and Laurance W. Kinsell.

A Revision of the North American Species of *Lathyrus*. C. LEO HITCHCOCK. 104 pages, illustrated. University of Washington Press, 111 Thomson Hall, Seattle 5, Washington. (1952) $2.50.

The author is Professor of Botany at the University of Washington and for a number of years has devoted considerable time to field studies of the western species of *Lathyrus*. This publication is an attempt at a comprehensive treatment of the North American species of the genus and is the result, primarily, of field and herbarium studies. Eight introduced and thirty-one native species with thirty-three subspecies or varieties are recognized. The phylogeny of the group, based upon chromosome number and degree of affinity as evidenced by interspecific crossing, is postulated. Distribution maps and scale drawings of the chief diagnostic features of each taxon are included.

A Study in Manic-depressive Psychosis: Clinical, Social and Genetic Investigations. ÅKE STENSTEDT. 111 pages. Ejnar Munksgaard, Nørregade 6, Copenhagen. (1952) 20 Swedish crowns.

The principle adopted by the author for this investigation was to take as proband material all the cases of manic-depressive psychosis occurring within a certain geographic area during a certain period of time. The northwest part of a Swedish county was chosen and the years 1919-1948 taken for study. The author's objectives in the study were: to determine the morbidity risks for mental illness and abnormalities among the siblings, parents and children of the probands; to contribute, if possible, to the knowledge of the nature of hereditary and environmental factors in the origin of manic-depressive psychosis; and to consider some of the clinical aspects of the cases and to try to study the cases socially.

Zoogeography of the Sea. SVEN EKMAN. 417 pages. The Macmillan Company, 60 Fifth Avenue, New York 11, N. Y. (1953) $6.50.

The task of zoogeography is "to use the results obtained by paleozoology, paleogeography and paleoclimatology to clarify the origin and history of the various faunas in their several distributions." A large part of the book is occupied with the animal life of the continental shelves. The Atlantic and Pacific shelf faunas of Central America, the Mediterranean and Ponto-Caspian brackish-water assemblage, the boreal region of Europe, the Atlantic fauna of North America, boreal Pacific Ocean, coastal fauna of the Arctic and the shelf regions of the Antarctic are some of the regions considered. The life of the seas at various depths occupies a considerable part of the text and a comprehensive description of the plankton community is included. The book has been translated from the Swedish by Dr. Elizabeth Palmer.

LETTERS
TO THE EDITOR

In the current discussions, in the *AIBS Bulletin* and elsewhere, of the prevailing and probable future shortages of scientific manpower, one aspect has not, I think, been given adequate attention. This is the matter of effective utilization of existing trained personnel, a matter for the attention of the large and increasing class of administrators of scientific work. Administrators in government organizations, private research organizations, and universities are all likely to be at fault.

I do not have in mind the difficult problem of getting the best work out of scientists in research that they are directed to do rather than what they would be interested in doing. It is the widespread practice of forcing a highly trained and expensive scientist to do his own clerical work, typing of letters, preparation of material, dishwashing and such tasks. I have more than once seen a botanist, in one case at least, one of the best systematic botanists in the country, copying labels. In this instance his own comment was that these were among the most expensive labels that had ever been written. I have seen heads of entomological departments pinning insects. And the number of scientists who must type their own letters is large. But I have yet to see an administrator typing letters or doing any other such menial work.

The economic aspects of this are obvious. But its effects, scientifically, need emphasis. The amount of time available for actual research and thinking is, of course, seriously reduced. The scientist, himself, over a period of years of seeing administrators with corps of secretaries while unable to get a typist for his own work, becomes disillusioned about the importance of what he is doing. The work that he does tends to approach the minimum that he thinks he is being paid to do, in quantity, and perhaps in quality, too. Young men, selecting a career, find it more sensible to become administrators, rather than scientists. Usually they intend to do research in their spare time, but they seldom do.

Consideration of this aspect should not lessen the attention that is being paid to interesting promising young people in scientific careers, but certainly if some attention were given to this problem, the general scientific public might take more seriously the existence of a shortage of scientific manpower.

F. R. Fosberg,
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First, I wish to state I enthusiastically concur with most of the points made by Professor H. J. Fuller in "College Teaching: Its Present Status and Its Improvement." This article could be recommended reading for teaching biologists and "deans and presidents" too.

The discussion presented in part deals with the evaluation of research vs. teaching in educational institutions. The skepticism of Prof. Fuller to the "old bromide that there is a high correlation between great teaching ability and great research ability" may be justified and one may argue perhaps that the number of scientists deserving the superlative "great" in both categories are not large in number. It does seem, however, a point was not made by the author which is not unrelated to the problem of effective teaching in biology, especially in functional biology. The thought could be added that in many scientists, honest research in fundamental science and realistic teaching are not mutually exclusive. I am quite convinced many teachers are inspired and consequently inspire their students because they are actively at some frontier in a field of basic science and are therefore better teachers. A professor who is trying to do research and is in active association with others who are making the science will be less likely to drift into text book scholasticism with an inevitable emphasis on scientific "facts" rather than the method and criteria of arriving at those facts. To Professor Fuller's statement "Research is important in human life, important in man's intellectual growth and in his practical affairs" may be added, and can be important in effective teaching too.

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Professor Harry J. Fuller's article in the January 1953 *AIBS Bulletin*, "College Teaching: Its Present Status and Improvement" interests me very much. I think he has said much that has long needed to be said.

Clinton W. Root,
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Public Health Service Research Grants In Biology

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AND

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DURING the years of World War II when our total national effort was geared to survival and ultimate victory, considerable emphasis was placed on supporting expanded activities in the field of medical and biological research, as well as in other fields. The program was made possible by large appropriations expended under the direction of the Office of Scientific Research and Development.

At the close of the war in 1946 when the Committee on Medical Research of the Office of Scientific Research and Development sought a proper liquidation of its program, agreement was reached that responsibility for approximately fifty research projects of university scientists should be transferred to the Public Health Service. The news of this transfer initiated a rapid expansion of research grant activities, and research in this field entered upon a new concept of more adequate support. The economy of supporting our priceless asset of brain power with money power received ever-widening acceptance and implementation. The decision of the Public Health Service to continue and expand this program has been consistently validated by the Congress through ever-increasing annual appropriations to provide an expanded national base line of research. The increase from 1946 through 1953 is shown as follows:

Fiscal Year	*No. of Projects*	*Total Funds*
1946	50	$ 780,158
1947	354	3,437,280
1948	1,050	8,874,463
1949	1,133	10,871,492
1950	1,533	12,984,000
1951	1,723	16,374,128
1952	1,884	18,408,000
1953	2,000	20,518,000

At the very outset the Public Health Service decided to place the responsibility for the scientific evaluation of all research grant applications in the hands of groups of non-Governmental scientists expert in the area under consideration. The Public Health Service is deeply grateful to these two hundred and seventy-five scientists for the long hours and hard work they have given to the burdensome scrutiny of applications involved. Although many applications are not recommended for approval by these scientific colleagues of the applicant because of the scientific evaluation of the merit of the proposal or because of the training or lack of facilities of the applicant, many other applications fail to receive recommendation for approval because of the keen competition for funds. Even though appropriations have steadily increased to a level of twenty million dollars in 1953 and even though roughly 60% of new applications are recommended for disapproval, requirements in 1953 for projects recommended by these technical consultants will exceed funds available by more than four million dollars.

These reviewing consultants comprise twenty-one Study Sections [1] established in the Division of Research Grants of the National Institutes of Health. In addition to their responsibility for review of applications based on scientific merit of the proposal or degree of faith in the investigator, the Study Sections are also charged with responsibility for analysis of the total research in their respective spheres of interest, with determination of neglected or gap areas, and for stimulation of research indicated as needed. The Division of Research Grants provides a professionally trained Executive Secretary and other staff assistance to each Section in the conduct of these responsibilities.

The applications are then reviewed by the respective National Advisory Councils of the seven Institutes [2] of the National Institutes of Health. Council review and recommendation for approval, which is required by legislation,[3] leans heavily upon the technical advice of the Study Section but takes into consideration additional factors such as program objectives.

The research grants program of the Public Health Service does not operate as "categorically" as might be assumed from the existence of seven Institutes. Each Institute supports both applied research and investigations that are basic or fundamental in nature. Furthermore, a very generous portion of the total research grant appropriations is earmarked for non-categorical projects, supported by the Division of Research Grants upon recommendation of the National Advisory Health Council. The Division has responsibility not only for this portion of the grants program but also for the coordination and general administrative direction of all research grants and fellowship activities of the Public Health Service.

The practice of the seven Institutes of supporting investigations that are fundamental in nature, along with the availability of non-categorical funds through the Division of Research Grants, is highly significant to the proper development of biological research. It means that research financed by the Public Health Service through research grants does not have to be slanted toward any special disease to win support. Any biological research in the health fields falls within its area of interest.

The establishment of the National Science Foundation, with a primary function to support basic scientific research, further insures equitable opportunity for research assistance and de-emphasizes any urgency on the part of the investigator to change his plans for research in order to win support. The

Public Health Service recognizes the important effect that a functioning National Science Foundation will exert upon all research grant and contract programs. The Foundation is expected to analyze research trends, objectives, and issues, in order to integrate the varied research grant and contract activities into a pattern of Government support that will assure proper balance.

The Public Health Service and other agencies will look to the National Science Foundation for development of national policy for promotion of basic research. Since there are several Government agencies granting funds for research in medical and biological sciences, it will be particularly important for the Foundation to initiate studies leading to sound practice in allowance of indirect costs, in support of scientific journals, in the promotion of economic stability for research workers, and in similar areas where need exists for common understanding and policy.

It was the obvious intent of the Congress in establishing the National Science Foundation to further research in many fields, since it authorized the Foundation to evaluate scientific research undertaken by Federal agencies and to correlate the Foundation's research program with other such programs. It was likewise obvious, specifically so in the Conference Committee Report,[4] that it was not the intent of the Congress that the activities of the Foundation should supersede, curtail, or limit any of the functions of other Government agencies authorized to engage in scientific research. This conclusion is particularly commendable since it is generally agreed (1) that it is a distinct advantage to the granting agency to maintain effective liaison between its intramural research program and the related non-Federal programs supported, and (2) that it is very definitely to the interest of the biologists and other scientists to have opportunity to seek their aid from more than one agency. The National Science Foundation and the Public Health Service have agreed that no one reviewing body should have sole and final authority as to what research merits support.

The concept of a few people that the Public Health Service will now discontinue support of basic research is both unfortunate and erroneous. In the first place, it would be well nigh impossible to accomplish a wise separation of Public Health Service supported projects into basic and applied categories. Contradictory definitions and connotations of nomenclature would themselves create great confusion. One may conclude therefore that the scope of Public Health Service responsibility includes any research in health, medical, or related scientific fields. A part of the difficulty in separation of the projects lies in the fact that much of the research supported would be considered quite differently by the granting agency and by the investigator. A biochemist, for example, might propose what to him would be basic biochemical studies while his results might well be directly applicable for the internist in the understanding or management of some clinical problem. It is not possible for applied research to outstrip the basic research upon which it depends. It is by now generally recognized that the rate of acquiring basic knowledge is the chief limiting factor in technological advantages. Hence, while the major objectives of the National Institutes of Health may correctly be interpreted as directly related to the study of diseases and impairments of man, it is certain that the attainment of such objectives is entirely dependent upon the promotion of studies of all aspects of the problems. Cognizant of the continuously narrowing margin between fundamental data and the requirements of technological and developmental advances, the National Institutes of Health have properly laid great stress on the support of basic investigations. The Study Section and Council members have regularly recommended this course of action to the Surgeon General, convinced as they were that more and more emphasis should be so placed. The Public Health Service will continue then to allocate an important portion of its attention to the basic work in biological sciences definitely or potentially applicable to health and medicine.

Although it is the policy of the Public Health Service to support research initiated by the applicant, occasionally it becomes evident upon analysis that actual stimulation of interest is indicated to achieve solution of the total problem. To engage in such stimulation might appear to be contradictory to the principle that no attempt should be made to reorient an investigator's work. Actually, however, such is not the case for there are in most instances investigators doing work quite similar to that which one wishes to stimulate, who with help could continue their own work and assume direction of the additional research needed. More often the question is only that of increasing the tempo of investigations already undertaken through provision of better equipment or staff. In short, it has not been necessary or desirable to persuade scientists engaged in biological or other research to undertake work which does not represent their own natural interests.

Not all of biology falls within the scope of interest of the Public Health Service. Plant biology, for example, generally falls outside, yet even here some studies have been considered as having sufficiently direct relation to medicine to win Council recommendation of approval. Furthermore, not all of "health, medicine, and related sciences," falls in the biological field. The great majority of the two thousand research grants in 1953, however, may be correctly described as biological research.

There has been much discussion as to the desirability and necessity of detailed research proposals. In this regard we have concluded that the competency of the investigator is of paramount importance but that the detailed research proposal serves a most useful function in assisting the committees to evaluate this competence. In order to do this, they must subject the proposals to critical scrutiny, raising such questions as the following: Is the study well designed? Is the problem important? Will the investigator have adequate facilities? Does he show lack of knowledge of the pertinent literature? Has he properly related his budget to the scientific research proposed? Has he assured himself of necessary collaboration indicated in the application?

In addition to serving as a tool for evaluation of the man, the detailed project description also serves to provide the granting agency with important information as to the nature of the work being undertaken, the determination of the so-called "gap areas," and the establishing of more refined program objectives.

The problem of continuity of support has received much attention and the Public Health Service has sought within the annual appropriation structure to provide the maximum practicable. If one made long-term grants from annual appropriations, he would reduce the number of people who might be supported in direct ratio to the number of years of the long-term support provided, at least for a period of several years. Not willing thus to reduce the number of investigators receiving support, yet fully aware of the need of the grantee for stability and security, the Public Health Service developed a next-best plan of financing, i.e., a grant of cash for one year and moral commitment of future support for up to five years, contingent only upon continuation of adequate appropriations. The continued non-partisan Congressional support of the program has, under this plan, reassured the scientists in so far as stability is concerned.

No statement concerning the role of the Public Health Service in biological research should be concluded without reference to a most important aspect of its governing philosophy, namely, the scientific freedom of the investigator. It is not enough that he have opportunity to compete for

funds in any field of research where his natural interests lie; he must also be free in the use of the funds granted, to change his research as desired, to permit follow-up of any new and promising leads. Public Health Service research grant policy does permit this sort of freedom and encourages the investigator to use the research funds for the most important research purposes he determines.

In summary, the Public Health Service supports research in the health, medical, and related scientific fields, the great majority of which would be classified as biological research. It looks to the National Science Foundation for certain overall policy guidance and advice resultant from studies of trends, issues, and objectives, as well as for support of much basic work that may well later be shown to have medical implications not apparent at the time of the award of the research grant. It recognizes as extremely undesirable for the Public Health Service, and well-nigh impossible, any administrative procedure or device that would be intended to distinguish between basic and clinical research, believing instead that the Service is well advised to continue the sort of assistance to scientists provided to date. It recognizes the need to continue emphasis on basic or fundamental investigations and encourages other granting agencies to do the same. And, finally, it believes that except in a few cases where close collaboration of groups of scientists under joint protocol is indicated, the Service should consider its role in biological sciences to be that of (1) procurement of necessary funds to meet the requirements of researchers whose projects have been recommended by reviewing technical consultants and (2) the granting of these funds in a manner to insure to the scientist the greatest possible scientific freedom. The Public Health Service program thus remains a program of scientific research in the hands of the scientists.

Bibliography

[1] *Ad Hoc Committee on Sectional Research in Microbiology, Biochemistry Study Section, Cardiovascular Study Section, Committee on Radiation Studies, Dental Study Section, Endocrinology Study Section, Environmental Health Study Section, Experimental Therapeutics Study Section, Hematology Study Section, Mental Health Research Study Section, Metabolism and Nutrition Study Section, Microbiology and Immunology Study Section, Morphology and Genetics Study Section, Pathology Study Section, Pharmacology Study Section, Physiology Study Section, Public Health Study Section, Sensory Diseases Study Section, Surgery Study Section, Tropical Medicine Study Section, Virus and Rickettsial Study Section.*

[2] *National Cancer Institute, National Heart Institute, National Institute of Arthritis and Metabolic Diseases, National Institute of Dental Research, National Institute of Mental Health, National Institute of Neurological Diseases and Blindness, National Microbiological Institute.*

[3] *The Public Health Service Act, as amended, Section 301(d).*

[4] *National Science Foundation Act of 1950. Conference Report, No. 1958.*

Biologists in the Field of Wildlife Conservation

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WE often hear comments such as "people are funny!" and "one meets the strangest people!" Such sage remarks are not infrequently directed towards biologists, particularly those engaged in one of the many phases of wildlife conservation work. Bulletins on the "love life" of the raccoon or frog, and biologists who, for one reason or another, count the "whiskers" on a fox squirrel are held up for ridicule or dismissed with a shake of the head or a shrug of the shoulder and termed "batty."

Not many years ago a student majoring in wildlife was busily engaged in determining the abundance of weed seed available for wildlife per square foot of wheat stubble field when he was rudely interrupted with a tap on the shoulder and the question, "what in blazes are you doing?" The local sheriff had come to investigate the report of the landowner that a crazy man was at work on her property, and she wanted him taken away. This student had not yet learned that wildlife management consists, perhaps, of 75 percent working with people and 25 percent with wildlife and had not contacted the landowner, nor explained his purpose there. He was, however, one of an increasingly larger number of biologists receiving training and experience from the ground up in this important field of wildlife conservation. The people who unthinkingly hold wildlife biologists in such poor light usually fail to realize that more than 25 million of their fellow citizens engage in the healthy, outdoor recreations of hunting and fishing, and in so doing spend from 4 to 9 billion dollars annually. They also are thinking primarily of the "ward heelers" of yesteryear who all too frequently held the conservation jobs rather than the well-trained men who are entering the field today. In addition to the hunters and fishermen, wildlife resources and their management are of interest to a large group of people who enjoy, from the esthetic standpoint, observing the many forms in the wild; those who make money from the sale of sporting goods, cameras, nature books and hunting rights; hotel managers, service station operators, restaurant owners and others who profit from the trade of tourists, hunters and fishermen; trappers and fur farmers and manufacturers; and those engaged in professional wildlife work. Among the latter group are the biologists.

Prior to the 1930's, when there appeared two very important books on wildlife management, Aldo Leopold's *Game Management* (1933), and Herbert Stoddard's *The Bobwhite Quail* (1931), relatively few biologists were termed wildlife biologists or were indeed associated with what we now refer to as wildlife management in the United States. True, there was a handful of men trained primarily as zoologists or botanists, or, by the school of hard knocks and experience, engaged in biological surveys, taxonomic projects, food habits work or other phases of wildlife conservation. Considerable attention was given to predator control work, game farming and the hit-and-miss release of fish and game. Then as today, however, hunters were demanding more game, fishermen were demanding more fish, and the "barbershop" biologists were denouncing the fish and game administrators as incompetents. The number of hunters and fishermen increased, and the problems confronting the administrators charged with managing the people's wildlife resources increased. Neither the administrators nor the "barbership" biologists had the answers to these problems.

In Iowa, "Ding" Darling, noted conservationist and cartoonist, at that time a member of the State's Conservation Commission, hit upon the idea of a cooperative arrangement with Iowa State College. In this cooperative project, specialists at the College who had hitherto devoted little or no attention to wildlife would, with the financial assistance of the Conservation Commission, help solve some of the problems in wildlife management and offer basic and specialized training to students who would, upon graduating, fill important conservation positions. The idea worked in Iowa; and when Mr. Darling became Chief of the Biological Survey, one of the predecessor agencies of the U. S. Fish and Wildlife Service, he reasoned that the need for more and better wildlife research and training was nation-wide. Furthermore, he believed that the cooperative program could be improved with financial assistance of the American Wildlife Institute, a predecessor of the Wildlife Management Institute, and by stationing a biologist of the U. S. Biological Survey at each of several cooperating land grant colleges. This biologist would act as unit leader to assist in carrying on the work in accordance with the needs and policies established by local coordinating committees upon which cooperating agencies would be represented. The states accepted the idea, and 9 of these Cooperative Wildlife Research Units were established in 1935 with the major objectives being to (1) train personnel for responsible positions in the field of wildlife management, (2) conduct research basic to proper utilization of the Nation's valuable wildlife resources, (3) promote education through such means as demonstrations, lectures and publications, and (4) to provide technical assistance to conservation agencies in their wildlife management problems.

The Cooperative Wildlife Research Unit Program expanded so that by 1950 the Fish and Wildlife Service and the Wildlife Management Institute were cooperating with the conservation departments and the land grant colleges of 16 widely scattered states and the Territory of Alaska.

With the establishment of these Wildlife Research Units, many of the cooperating colleges and universities added, for the first time, faculty members whose responsibilities were to teach students wildlife and related subjects and to conduct wildlife research. There were no wildlife textbooks as such. Wildlife conservation as a way of life and as a profession was just coming into its own. The fish and game administrators and the wildlife professors were being confronted with the same types of problems that foresters and forestry professors had faced 20 years earlier. The administrators needed facts upon which to base wildlife management programs; they needed trained personnel to carry out the programs. They wanted action. When openings occurred in their organizations, they became more and more inclined to employ college graduates who had taken some wildlife courses.

During World War II students enrolled in wildlife curricula throughout the country were greatly reduced in number; but following the war, G.I.'s enrolled in conservation courses in unprecedented numbers. More and more colleges added wildlife conservation and management courses to their curricula until in 1952 at least 50 institutions listed such training in their college catalogs. Many others offered general survey courses in conservation. The curricula had, like Topsy, just grown without much direction or standardization. At first, the wildlife professors had lectured on various phases of botany and zoology, with somewhat greater emphasis on fish and game than had been done in the past. They had but little wildlife literature as reference material and but few specialized wildlife techniques to describe. With each passing year, however, more wildlife research was being accomplished, more wildlife papers were published, and more techniques were developed. Those in charge of the wildlife curricula now had to sort the wheat from the chaff, and there was a tendency to incorporate too many techniques courses into the wildlife curricula, and too few of the basic courses in botany, zoology, ecology, chemistry, and related fields.

Wildlife training was offered in colleges of agriculture, in forestry schools, liberal arts colleges—wherever local circumstances dictated. It was logical that in the agricultural midwest, wildlife training should be established in colleges of agriculture and departments of zoology and entomology. This is true, for example, at Iowa State College, the University of Minnesota, and the Ohio State University. In the forested areas of Colorado, Idaho, Maine, and Utah, wildlife training is a part of the respective schools of forestry. Only a few institutions, such as Cornell University, the University of Michigan, Michigan State College, University of Massachusetts, Oregon State College, Texas A. & M. College, University of Wisconsin and Yale have separate departments of conservation or wildlife management. Perhaps such a development has been advantageous since wildlife workers in predominantly agricultural areas have greater need for knowledge of agronomy, farm cropping practices, animal husbandry, and rural sociology than workers in vast forested areas. Wildlife managers working in forested areas need more knowledge of forest utilization, forest mensuration, range management—courses which would not have much immediate application in intensively farmed areas.

Actually, some of the top men in wildlife profession never took a wildlife course as such, but a majority of the workers professionally engaged in fish and wildlife research and management positions are biologists. These men have had varied types of training and experience.

Although some consideration has been given to the desirability of standardizing through accreditation the fish and wildlife management training now being offered, no serious effort has yet been made to do so. No attempt will be made here to give in detail the type of training useful to wildlife workers. It should be pointed out, however, that men going into conservation officer or game warden types of jobs require less biological training than the professional wildlife biologist who conducts advanced research, or the wildlife professor in charge of training and research programs. The Committee on Professional Standards of the Wildlife Society in 1939 pointed out that "Too few schools offer good instruction in the field operations of wildlife management and administration; too many offer indifferent training in wildlife science and research." As this Committee stated, professional training in the wildlife field cannot be defined in terms of courses because of lack of standards for specifying courses. Generally speaking, a master's degree is the minimum of formal training for professional standing.

In 1951 a similar committee of the Wildlife Society contacted the various Federal and state conservation agencies in an effort to determine some of the shortcomings of current fish and wildlife graduates. The employers indicated that the chief shortcomings of these graduates was their inability to express themselves effectively and accurately in English. Other shortcomings listed were lack of sufficient experience and ability in applying management and research techniques, inade-

quacy in social and public relations and in personnel management, insufficient grounding in basic scientific courses because of overspecialization, and poor attitudes and work habits.

Because of increased competition for jobs, available fellowships, financial aid made possible by the G.I. Bill and realization on the part of employers that advanced training is desirable for certain types of jobs, a greater percentage of wildlife students are getting their M.S. and Ph.D. degrees. Thus the ratio of B.S. graduates to post graduates has decreased from 4.6:1 in 1949 to 2.6:1 in 1951.

The total number of people who have obtained wildlife training since the early 1930's is not known. Our records, however, indicate that since the establishment of the Cooperative Wildlife Research Units in 17 colleges and universities, 1,519 wildlife students have graduated from these institutions, including 1,127 with bachelor's degrees, 352 with master's degrees, and 40 with Ph.D. degrees. During each of the last three years, wildlife graduates of these Unit schools have constituted approximately 50 percent of the total known wildlife graduates. Assuming that this ratio has been about the same since 1935, we arrive at a figure of approximately 3,000 degrees. Allowing for duplication of the men who received advanced degrees, the total is reduced to approximately 2,225, of which considerably more than one-third graduated during the two years, 1949-50 and 1950-51 (school years). These figures do not include graduates of some of the fisheries schools or of colleges which do not have courses in wildlife conservation as such.

At some institutions the undergraduate training in the fields of fish and wildlife management is combined, with the students taking essentially the same courses; at some institutions the curriculum is divided with specialization in the respective fields; while in other colleges and universities training is given in only one of these fields. Richard Van Cleve (October, 1952, issue of the *Progressive Fish Culturist),* in describing the school of Fisheries, University of Washington, indicated that when the School was first opened, major emphasis was on training in techniques of fishing and on the canning, salting and processing of fish. Conservation was confined to training in systematic ichthyology and hatchery practices. However, he stated: "As the field of fishery conservation develops, the need for a more profound understanding of the related sciences becomes more evident. Students must now carry as much work as possible in chemistry, biology, and mathematics or related fields of physics, engineering and economics, according to their individual interests and abilities."

The same statement may be made regarding the training of wildlife students who perhaps have an even greater need for an understanding and appreciation of land-use practices, and ability to identify the common trees, shrubs, herbaceous plants, birds, mammals, and other vertebrates, and their relationships to each other and to the total environment. Physiological, statistical and nutritional work demands very specialized training and skills as does work on wildlife diseases and many other aspects of wildlife conservation. We are realizing more and more the complexity of wildlife management and the necessity of proceeding on a sound biological basis ever tempered and conditioned by economic and sociological factors.

The supply of students graduating from the fish and wildlife curricula of the various colleges and the demand for technicians have been pretty well balanced. As a matter of fact, the demand for personnel, due in large measure to the enactment of the Federal Aid to Wildlife Restoration Act of 1937 and the shortage of civilian manpower during and immediately following World War II, was so great that many relatively poorly trained men obtained positions. In 1951 the Wildlife Society's Employment Committee, after having contacted by questionnaire the training institutions and the conservation agencies of the United States and Canada, calculated that there would be approximately 500 (1951-52) wildlife graduates seeking employment compared to 581 possible job openings expected. This doesn't mean that all of the graduates obtained wildlife jobs, of course, but the outlook was and continues to remain favorable for the better qualified men.

As pointed out in the Committee report, the employing agencies indicated a decided preference for men with a master's degree plus additional experience. It is interesting to note that of the 1950-51 graduates, 52 percent of the Ph.D.'s, 6.5 percent of the master's degree men, and 2 percent of the bachelor's degree men went into college teaching.

Although more openings were reported in wildlife work than in fishery work, the passage of the Federal Aid in Fish Restoration Act in 1950 has given impetus to fishery projects. King *(Progressive Fish Culturist,* October, 1952), in reporting on the first year's operation under this act, noted that of 112 fishery projects in action, 76 were fact-finding, dealing with how to manage individual species or combinations of species within a given habitat, how to deal with farm fish ponds, trout streams, how to control aquatic weeds, diseases and nutrition, etc.

The Wildlife Society's records on employment of the 1950-51 graduates revealed that of those obtaining wildlife employment, 45 percent went into game work, 32 percent into fisheries activities, 8 percent into combination fish and wildlife jobs, 6 percent into law enforcement, 8 percent into teaching, and 1 percent into administration. Approximately 70 percent of those obtaining wildlife jobs went into State and Provincial fish and game departments as compared with 20 percent into Federal agencies. A few graduates (2 percent in 1951) obtained jobs with private individuals and managed duck marshes or supervised game management on large ranches. In connection with college teaching, it is interesting to note that the heads of at least 3 departments of zoology and entomology at large land grant colleges are wildlife biologists. Likewise, an increasing number of trained wildlife biologists are now holding responsible administrative positions such as the directorships of state conservation departments. With the broad undergraduate training that most wildlife majors receive, the opportunities for specialization in the graduate school and the increasing competition for jobs, it is only natural to find the employment base for wildlife biologists broadening. Thus some of them with special ability in writing are going into outdoor writing, others into natural history photography and lecturing, others are supervising survival training in military schools, engaging in Boy Scout work and conservation education or investigating the relations of wild animals to human disease and welfare in such a far flung outpost as Anaktuvuk Pass, Alaska. Still others (11 percent of the graduates of the 1950-51 school year) are in military service, most of them awaiting the day when they can get back into their chosen profession.

To improve their professional status and to keep posted on important conservation findings and activities, wildlife biologists join numerous professional societies, including the Wildlife Society, American Society of Mammalogists, American Ornithologists' Union, Ecological Society of America, Soil Conservation Society, Society of American Foresters, American Fisheries Society, American Society of Ichthyologists and Herpetologists, AAAS, Sigma Xi, and many local organizations. This partial list of societies gives some idea of the breadth of interest among the wildlife biologists.

In addition to attending meetings of these various professional societies at every opportunity, conservationists throughout the country, and usually numbering about 1200, attend the North American Wildlife Conference staged annually by the Wildlife Management Institute. Several regional and state wildlife conferences are held also to discuss the biological, economic, and social aspects of wildlife conservation.

Although the pay is not good (annual salaries for professional workers begin at about $3,400 and seldom exceed $10,000), the work is challenging. Wildlife populations are never static; the habitats are always changing; and each year more people are concerned with harvesting or enjoying in other ways the Nation's wildlife resources.

Opportunities for Women in Biology

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WOMEN have achieved success in all types of work related to biological sciences. Qualified women should have no difficulty obtaining employment in laboratory research if their training has provided for a broad enough base for some flexibility. Women are not readily accepted for field research positions, but individuals have proven that complete discouragement of able young women sincerely interested in field research is not justified. There are many types of educational or other interpretive positions related to biological sciences for which women are preferred or given equal consideration with men candidates and for which there is a shortage of adequately prepared personnel.

The Women's Bureau of the Department of Labor recently published a series of pamphlets on opportunities for women in the various sciences. These deal primarily with laboratory research. Guidance counsellors and persons engaged in the training of specialists in the biological sciences are usually more or less informed as to employment outlets and training requirements for the various levels of specialization in laboratory research work. For these reasons, the study on which this article is based did not attempt to present statistical data on opportunities in laboratory research but rather to draw upon the experiences of women in such positions for suggestions on how women can work toward improvement of their opportunities and professional satisfaction. A more thorough investigation was made of the less explored areas of employment in which there seemed to be a greater need for guidance information.

In the comments from women in laboratory research positions, certain recommendations appeared with enough frequency or emphasis to merit consideration by women preparing for such work. The two most common were to develop skills in report writing and laboratory techniques. Since one seldom gets adequate training in these areas in college course work, additional experience should be sought through part-time assistantships in science laboratories while at college or during summer vacations. The value of a knowledge of statistics for many kinds of laboratory research was mentioned, as was a usable knowledge of foreign languages. Some people considered secretarial and library experience or training valuable assets for women. Some women recommended that in addition to the usual pattern of training for a general area of research, a girl should develop a specialty in her field such as a particular laboratory technique, a special process, or knowledge of a plant family, an animal family or a geographical region.

Opportunities for women in museum research are limited for several reasons. The total number of such positions is comparatively small, there seems to be an adequate number of qualified men candidates for the positions, the turnover is low and most administrators are reluctant to include women in field expeditions which are part of most positions. Of the 38 museums from which information was obtained, ten employ women in curatorial positions or as professional scientific assistants. The total number of women in these museums is 19. It is not likely that many more specialized research positions in museums are held by women since most of the larger museums were contacted. A woman contemplating museum research should realize that opportunity to participate in field research may not come easily.

The number of smaller museums is increasing and these offer a somewhat different type of curatorial position, requiring a more general biological science background and ability to do interpretive work in making the services of the museum available to the public. These positions involve less research work.

Museum people seem to prefer to employ museum people. This means that when a vacancy occurs the person most likely to be considered is a person in museum work who is known or recommended to the administrator. Therefore, anyone interested in museum work should start as early as possible to visit museums, become familiar with behind-the-scenes work and become acquainted with museum personnel. Museum staff members may be helpful in planning one's training and experience. Temporary or volunteer positions can provide valuable experience and contacts.

Girls interested in the various conservation fields such as fisheries, forestry, wildlife or soil conservation should realize that it will not be easy to obtain employment, particularly for work involving field research. However, successful women in each of these fields prove that the doors are not closed. It seems that success is determined by a combination of perseverance, excellent training and experience, personality, and good luck. Employers and successful women in conservation stress the importance of practical as well as technical knowledge of the field. Therefore, depending on the field of interest, experience such as hunting, fishing, camping or farming are desirable if not essential. As early as possible, one should seek the guidance of a person reputably established in the field. Such guidance will make for more efficient training. It can also mean support in gaining admission to the school of one's choice, in obtaining opportunity for temporary employment experience and employment on graduation. Every opportunity to gain field experience through summer jobs or volunteer work should be taken.

Many conservation agencies practice a policy of promotion from within. Therefore a girl might equip herself with additional training so as to qualify for non-research positions in a department in which she can see a possibility of transfer or promotion into work involving more research. Some employers will more readily consider a woman for a field research position if, having known her in another position, they are convinced of her sincerity and ability and have seen that she works well with other members of the department. Women have been promoted to field research work from secretarial, statistical and public relations work.

Early in her training a girl also might consider that jobs other than research in conservation agencies might offer equal professional satisfaction. Frequently, there is a place for a librarian with both subject matter background and library training. A librarian with the United States Forest Service stated, "by combining a love of forestry with a love of books and research investigation, I have found a job in which I have more to do with actual forestry than most top administrator's do."

Government agencies have some demand for qualified statisticians with subject matter background. This is particularly true in fisheries work and forestry. These positions may involve field research in varying degrees.

With the present trend of expanding informational and educational programs of conservation agencies, there is predicted an increasing need for persons with sound training in both subject matter and education or journalism and editorial work.

At the time of the study, five state conservation departments employed women for conservation education work. The United States Forest Service employed six women for similar work. Two other federal agencies and some state conservation departments are considering the addition of such positions. This work involves contact with children or adults or both.

Museums also provide a large number of positions involving educational work in the biological sciences. Out of 38 museums contacted, 23 employ a total of 47 women in educational work related to natural history. In others, there are such positions for which qualified women might be employed. The larger museums frequently employ an educational staff, members of which may be specialists in a subject matter area such as biological sciences, art, or history or each may be responsible for interpretation of all subject matter fields related to museum exhibits. In some museums only one professional staff member is employed to conduct the program, to perform the administrative duties of director and to assume any other functions, necessary for the success of the museum. There is an increase in the number of small museums as well as a shortage of qualified personnel for them.

Gardening programs and other forms of horticultural education work offer a limited number of opportunities. Information was obtained concerning 15 positions in this classification now held by women and about 20 more much such positions for which qualified women might be considered. These positions are in botanical gardens, community garden centers and school greenhouses, garden or farm programs. It may be assumed that several more such positions exist in addition to those investigated.

A fairly complete survey of zoological gardens revealed that at least six women are employed by zoos to conduct education programs. Nine out of 17 zoo directors indicated that they have plans for future development of educational programs which could provide employment for qualified women candidates.

In 1951 The Massachusetts Audubon Society employed 12 women in its program in which the Society and the benefiting schools, together, pay the salaries of an educational staff. Some of the teachers work in natural history museums, primarily doing educational work, but the majority go to the affiliated schools to conduct a conservation education program. Florida has started a similar program on a smaller scale and a few other state Audubon Societies have indicated interest in the plan.

A relatively new form of education, the school camp, is developing and appears to be expanding. Groups of school children, usually classroom units, are taken to a camp for a brief stay. The program is built on the belief that many of the goals of our educational programs can be achieved most effectively through direct experience in the out-of-doors. Where full-time school camp staffs are maintained, the personnel is seldom concerned only with biological sciences but usually this is one of the most important phases of the work. In 1951, information was obtained concerning 18 women employed in full-time positions in school camping. Other programs requiring full-time personnel were developing and administrators stated that they were having difficulty finding qualified personnel.

Occupational therapy is a field which appears to have interesting possibilities for persons interested in biology. A shortage of occupational therapists exists and is predicted for several years to come. Some good work has been done with natural science applied in therapy but apparently none to the extent that it provides a full-time position. Several administrators of occupational therapy programs expressed the opinion that a person with occupational therapy training plus training in natural science should find good opportunity and satisfaction and be able to make a valuable contribution. It would appear that this field offers a challenge for constructive pioneer work.

Positions involving informational and editorial work are found in government agencies, museums, research stations, botanical gardens and private conservation agencies. Many of these are now held by persons who have had training in only one phase of the work, that is either editorial and journalism training or subject matter. Some positions may be concerned primarily with technical writing or they may involve a popular approach for laymen or children. A picture of these employment opportunities may be obtained from the following information on women in such positions gathered in 1951. Five museums reported a total of 12; three of 11 botanical gardens contacted reported a total of five; six of 31 state conservation departments each employed one; the U. S. Fish and Wildlife Service employed three; National Park Service one; Soil Conservation Service, two; and Bureau of Plant Industry, five. All of these are professional level positions but some carry responsibilities in addition to journalism or editorial work.

Illustrative work, including scientific illustration and photography, offer limited opportunities to a woman with ability along these lines. Radio and television present a challenge which persons with originality and initiative might meet. There is a demand for good writing in the biological sciences. The word good should be emphasized to indicate a need for writing ability backed by technical training and relevant experiences to provide depth of understanding of subject matter and of audience.

Available openings in many types of non-research positions are few and only occasionally should individuals prepare specifically for any one type. The qualifications for these positions are such that, with careful planning, women can choose coursework and other experiences which will qualify them for several types of positions. Young women should explore the possibilities of the biological science fields before making their vocational choice. Young girls interested in biology might be encouraged to qualify for summer positions as camp nature counsellors, park naturalists, and nature museum assistants. Thus they might discover in themselves an interest and aptitude for some of the various kinds of educational work for which there is a need for better qualified personnel.

Improvement in the guidance and training of young women interested in biology will be a contribution toward greater individual professional satisfaction and toward improvement of the achievement of the biological science professions.

"The Americans of all ages, all conditions and all dispositions constantly form associations. They have not only commercial and manufacturing companies in which all take part but associations of a thousand other kinds, religious, moral, serious, futile, restricted, enormous, or diminutive. The Americans make associations to give entertainments, to found establishments for education, to send missionaries to the Antipodes, and in this manner they found hospitals, prisons, schools. . . . Wherever at the head of some new undertaking you see the government in France or a man of rank in England, in the United States you will be sure to find an association."

From *Democracy in America* by Alexis, Comte de Tocqueville (1805-1859).

KNOW YOUR SOCIETIES

SOCIETY OF SYSTEMATIC ZOOLOGY

Total membership: 1078. **Types of membership:** active. **Dues:** $1.00 per year (journal, $4.00 extra). **Journal:** SYSTEMATIC ZOOLOGY. **Officers:** President: Alfred S. Romer; President-elect: H. B. Hungerford; Secretary-Treasurer: Richard E. Blackwelder, National Museum, Constitution Avenue, Washington 25, D. C.

The Society of Systematic Zoology was founded in 1947 for the purpose of bringing together all persons interested in the taxonomy of animals and all those interested in any branch of systematics, from comparative anatomy and zoogeography to classification, evolution and genetics. Membership is open to anyone interested in any phase of systematics; active membership is available by the payment of annual dues of $1.00. Early in 1952 the first issue of the Society's new journal, *Systematic Zoology*, appeared. Subscription to this journal, which is optional with membership, is $4.00 per year.

Special activities of the Society include projects designed to bring information about zoological books to the members, to bring increased financial support to abstracting services, to increase international cooperation in nomenclature, and to increase the provision for sound systematic work and publication in biological projects and explorations.

Annual meeting sites are determined by the Council on the basis of facilities available and the wishes of the membership. The 1952 meeting was held with the *AIBS* at Cornell University.

SOCIETY OF PROTOZOOLOGISTS

Total membership: 315. **Types of membership:** active. **Dues:** $2.00 per year (does not include a journal). **Journal:** none. **Officers:** President: R. R. Kudo; Vice-president: Harold Kirby; Treasurer: Reginald D. Manwell. Secretary: Elery R. Becker, Iowa State College, Ames, Iowa.

A group of protozoologists met in Chicago in December 1947 for the purpose of considering whether or not a society of protozoologists should be organized. A questionnaire had previously been circulated among 161 persons and of these 85% were in favor of such an organization. Ross F. Nigrelli was elected the first President, B. B. Morgan the Vice-President and T. L. Jahn the Secretary-Treasurer. The first meeting with a program was held in Cleveland, Ohio in 1950 and the constitution was adopted on December 28, 1951 at the Philadelphia meeting of the *AAAS*.

According to the constitution, membership is open to all interested in the field of protozoology. Applications for membership must be approved by the Executive Committee before the applicants are elected to membership. Only one type of membership exists, active, and the present dues are $2.00 per annum. No journal is published as yet but one is anticipated for the near future. With its publication the annual dues will, by necessity, be raised.

As a young society, only one subsidiary activity has been established. A committee on cultures of protozoa, with Dr. Luigi Provasoli as chairman, has been appointed. The committee's function is to receive, keep on file, and disseminate information on bacteria-free and bacterized clone cultures of protozoa which are being maintained by members and are available for distribution to others.

The site of the annual meetings is determined by the Executive Committee; the 1952 meeting was held in conjunction with the *AIBS*-sponsored meetings.

BIOMETRIC SOCIETY
EASTERN NORTH AMERICAN REGION

Total membership: 560. **Types of membership:** active, associate, sustaining. **Dues:** $7.00 per year for active members (includes journal). **Journal:** BIOMETRICS. **Officers:** President: Georges Darmois, 7 Rue de L'Odeon, Paris, France; Secretary-Treasurer: Chester I. Bliss, Box 1106, New Haven 4, Conn.; Vice-President of ENAR: Lee Crump; Secretary of ENAR: Walter T. Federer, Plant Science Department, Cornell University, Ithaca, N. Y.

The Biometric Society, an international organization, was formed at the First International Biometric Conference held at the Marine Biological Laboratory in Woods Hole, Mass., on September 5-6, 1947. The Society is concerned with the advancement of quantitative biological science through the development of quantitative theories and the application, development and dissemination of effective mathematical and statistical techniques.

Through its regional organizations the Society sponsors regional and local meetings. At the end of 1948, and in order of formation, the organized regions consisted of the Eastern North American Region for that part of the United States and Canada lying east of approximately 104° longitude, the British Region for residents of the British Isles and British scientists resident in other countries, the Western North American Region covering western Canada, western United States and Mexico, the Australasian Region, which included Australia and New Zealand and the Region Francaise, which may be expanded to include Italy. Additional regions are being formed. Residents of unorganized areas are currently "members at large," a classification open to any member on request.

Membership is open to biologists, mathematicians, statisticians, and any others interested in the objectives of the Society. To become a member a person must be proposed by two members and approved by an authorized committee. Three types of membership exist in the *ENAR:* active, associate and sustaining. Associate members may not vote. Dues, of $7.00 per year, include a subscription to *Biometrics*. A special committee of *ENAR* determines the site of annual meetings. However, the location of such meetings is open for discussion with the entire membership at each annual meeting.

The Society journal, *Biometrics*, was started in 1945 as a bimonthly, the *Biometric Bulletin*. In 1947 it became a quarterly and its name was changed. It was published originally by the American Statistical Association, but in 1950 title to the journal was transferred to the Biometric Society. Under Society ownership it is being continued with the same Editor and basic policy. The following items are within the scope of *Biometrics:* (1) applications of new statistical theory, or new applications of established theory to the collection or evaluation of biological data; (2) reviews of statistical and mathematical methodology in specific biological fields; (3) reports of biological investigations which illustrate the effective application of biometric methods; (4) expository articles for biologists which describe new statistical tools and mathematical models appearing in the technical literature, or the assumptions necessary to validate common biometric techniques; (5) the formulation of quantitative hypotheses in biology or mathematical biology; (6) critical discussions and supplementary information on published articles.

MYCOLOGICAL SOCIETY OF AMERICA

Total membership: 622. **Types of membership:** active, emeritus, life, patron, corresponding, sustaining, associate. **Dues:** $6.00 per year for Members (includes journal; $100.00 in one payment for Life Members; $1000.00 in one payment for Patrons; $50.00 or more annual dues for Sustaining Members; $1.00 per year for Associates. **Journals:** MYCOLOGIA, NEWSLETTER. **Officers:** President: Charles Thom; Vice-President: William W. Diehl; Secretary-Treasurer: Leland Shanor, University of Illinois, Urbana, Illinois.

The Mycological Society of America was founded in December 1931 at the New Orleans meetings of the *AAAS*. The Society originated from the Mycological Section of the Botanical Society of America, a section that was organized in 1919. There had been an early society of students of fungi, the American Mycological Society, founded in 1903 but it had merged with the Botanical Society in 1906. When the present Society was organized in 1931 there were 279 charter members. Today the total membership is over six hundred.

All persons interested in the study of fungi are eligible for membership in the Society. Members pay annual dues of $6.00 which includes a subscription to *Mycologia* and any other publications of the Society. Applications for membership must be endorsed by an active member of the Society. Active members who have been members for ten years or more may become emeritus members upon retirement from active duty and upon application to the Council. Emeritus members do not pay dues but have all privileges of members except receipt of the journal. Any member may become a life member by paying $100 in one payment, or a patron by paying $1000 in one payment. The Society also elects from among distinguished foreign mycologists a limited number of corresponding members. Corresponding members do not pay dues but receive a subscription to *Mycologia* and have all the privilege of members. A person or corporation may become a sustaining member upon recommendation of a committee which reviews all such applications. Sustaining members pay $50 or more annually and receive *Mycologia* and any other publications of the Society. Contributions from sustaining members constitute a special publication and research fund. Students and others not yet members may be designated as associates upon recommendation of a member and payment of a fee of $1.00. Associates may attend meetings and present papers on the program but do not have the privilege of voting and do not receive *Mycologia*.

To facilitate cooperation between the Society and other organizations interested in mycology, the Society may, upon application, elect such organizations as officially Affiliated Societies. The Oregon Mycological Society and the Boston Mycological Club are at present Affiliated Societies. The Society has 584 active members, 5 life members, 8 emeritus members, 14 sustaining members, 2 corresponding members, 5 associates and 2 Affiliated Societies. In addition to holding annual meetings and collaborating with the New York Botanical Garden in publishing *Mycologia*, the Society issues semi-annually a *Newsletter* and holds an annual foray each summer.

PHYCOLOGICAL SOCIETY OF AMERICA

Total membership: 247. **Types of membership:** active, institutional, life. **Dues:** $2.00 per year (includes quarterly News Bulletin). **Journal:** PHYCOLOGICAL NEWS BULLETIN. **Officers:** President: C. E. Taft; Vice-President: E. T. Moul; Secretary-Treasurer: G. W. Prescott, Michigan State College, East Lansing, Mich.

Plans for organizing a society of phycologists were first initiated in 1940 but were interrupted during the war years. In 1946 at the Boston meeting of the *AAAS* plans were finally completed and in the following year a constitution was adopted at the first annual meeting, held with the *AAAS* in Chicago. The purposes of the organization are to promote research in all fields of phycology and to provide closer cooperation among phycologists both in the United States and abroad.

All who have demonstrated a professional interest in the field of phycology are eligible for membership, upon recommendation of a member. Members are not necessarily botanists, but often limnologists, sanitary engineers, industrialists and general physiologists. Three types of membership are provided; active, institutional and life.

By means of the *Phycological News Bulletin* and the program of papers presented at the annual meeting, the Society hopes to keep phycologists informed of the kinds of research in progress and make known the results of research. Eventually the Society hopes to publish a journal either independently or in cooperation with another organization. The place and time of annual meetings are determined by the Executive Committee. It has been the policy in the past to hold the annual meeting with the Botanical Society of America.

SOCIETY OF GENERAL PHYSIOLOGISTS

Total membership: 208. **Types of membership:** active. **Dues:** $2.00. **Journal:** none. **Officers:** President: H. Burr Steinbach; Vice-President: Arthur K. Parpart; Secretary-Treasurer: William R. Duryee, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington 15, D. C.

The Society of General Physiologists was founded at the Marine Biological Laboratory, Woods Hole, Massachusetts, in 1946. It grew from a small informal group of cell physiologists that was originally inspired by Robert Chambers, E. Newton Harvey and L. V. Heilbrunn. In the past it has held its annual meetings at Woods Hole, but recently joined other societies at the AIBS-sponsored meetings. Informal regional meetings on the west and east coast are encouraged.

No fixed standards for admission have been established other than the interest demonstrated by substantial publications in the field of general physiology. This is broadly interpreted as the elucidation of fundamental principles of life processes, rather than applied or narrow interests of research. Only one class of membership exists. Annual dues have been kept to the minimal amount of two dollars. The idea of sponsoring a journal has never met with the approval of the members. From time to time special symposia have been presented, centered on outstanding topics in general physiology. By maintaining a close informal type of organization, it is hoped that the Society will be of value and supply inspiration and, in the long run, be an influence on sound research in general physiology.

NATIONAL ASSOCIATION OF BIOLOGY TEACHERS

Total membership: 1,968. **Types of membership:** active. **Dues:** $2.50 per year (includes journal) or $4.50 for two years. **Journal:** THE AMERICAN BIOLOGY TEACHER. **Officers:** President: Harvey E. Stork; Vice-Presidents: Robert C. McCafferty, Arthur J. Baker; Secretary-Treasurer: John P. Harrold, 110 East Hines Street, Midland, Michigan.

Since its organization in 1938, the Association has promoted the development of the biological sciences at the elementary, secondary and collegiate levels. This is the only national organization specifically devoted to the improvement of biology teaching in the secondary schools. Through the publication of its journal, *The American Biology Teacher*, and the national and regional meetings, the Association: (a) aids in the dissemination of biological information necessary or useful to teachers, (b) encourages scientific thinking and the use of the scientific method in the teaching of biology, (c) provides

teachers and others with information concerning the selection, organization and presentation of biological materials, (d) encourages biologists to develop a sound relationship with the other sciences and education as a whole, (e) helps teachers keep informed on the latest biological research for use in the classroom.

Membership is open to all those who desire to keep informed on the recent developments in the biological sciences and in biology teaching. Special activities at the present time are concerned with a program on Health and Conservation. A grant from the American Nature Society is being used to study methods of increasing the effectiveness of conservation teaching by biology teachers. Annual meetings are usually held with the *AAAS* meetings in December.

GENETICS SOCIETY OF AMERICA

Total membership: 900. **Types of membership:** active, emeritus, sustaining. **Dues:** $4.00 per year for active members (includes RECORDS); $2.50 per year for graduate students (3 years only); $50.00 per year for sustaining members. **Journal:** none. **Officers:** President: Roy E. Clausen; Vice-President: W. Ralph Singleton; Treasurer: Ernst Caspari; Secretary: Clarence P. Oliver, Department of Zoology, University of Texas, Austin 12, Texas.

The present Genetics Society of America developed from the Joint Genetics Section of the Zoological Society and the Botanical Society, which had been formed originally in 1921. By 1927 it had become apparent that the needs of geneticists were not being adequately served and in New Orleans, in 1931, the present organization was formed and a constitution adopted. There were 289 charter members at this meeting.

All persons actively interested in any field of genetics are eligible for active membership. Emeritus membership is available to any person who has been an active member of the Society continuously for 20 years. The emeritus members pay no dues. Sustaining membership is open to all organizations interested in any field of genetics. Each sustaining member has the privilege of being represented at any meeting of the society by one appointed delegate. Such a delegate is eligible to hold office if he is an active member as well. Candidates for all classes of membership shall be recommended by two members of the Society. All members shall be elected by the Executive Committee.

Dues for the Society are $4.00 a year for regular active members, $2.50 for active members who are graduate students. These reduced dues apply for not more than three years. The dues for sustaining members are $50.00 per year and emeritus members pay no dues. All members receive the annual copy of the *Records* containing abstracts of papers presented at the annual meeting, program, list of members, Constitution, etc. The Society has no journal.

The Society has a standing committee for "Public Education and Scientific Freedom." This Committee works to keep the public informed on any controversial issues pertaining to genetics and related subjects. To aid with career guidance in schools and colleges the Society distributes a pamphlet entitled *Genetics, the Science of Heredity* which is a Public Affairs Pamphlet No. 165, originally published at the time of the Golden Jubilee of Genetics in 1950.

SOCIETY OF AMERICAN FORESTERS

Total membership: 8,500. **Types of membership:** junior, affiliate, student, member, fellow, associate (includes journal). **Journal:** JOURNAL OF FORESTRY. **Dues:** Student Member: $3.00; Senior Members: $6.00 rising to $12.00; Members and Fellows: $12.00 rising to $15.00; Affiliate and Associate Members: $6.00. **Officers:** President: George L. Drake; Vice-President: E. L. Demmon; Executive Secretary: Henry E. Clepper, Mills Building, Washington 6, D. C.

The Society of American Foresters was organized on November 30, 1900 in Washington, D. C. Its founder and first president was Gifford Pinchot, then chief of the Division of Forestry (now the Forest Service) of the U.S.D.A. The Society began its existence with seven members. Today the membership totals 8,500. From the beginning the Society held frequent meetings, and published periodical proceedings which in time developed into the official organ of the Society, the *Journal of Forestry*. This is a professional magazine issued monthly to 10,000 members and subscribers. Subscription to the *Journal* is covered by membership dues, but for non-members it is $6.00 per year domestic and $6.50 foreign.

Several grades of membership exist in the Society. For professionally educated foresters, who are graduates of institutions accredited for forestry, admission to the Society is through the Junior Member grade. For those who are educated in forestry but are not graduates of accredited schools, admission is through the Affiliate Membership, a non-voting grade. Affiliate Members, on proof of adequate experience to supplement theoretical training, may advance to Junior Membership. After a probational period of three years, Junior Members may apply for advancement to the professional grade of Member. Fellows, who number less than 1% of the total membership, are elected from the Members in recognition of outstanding achievement in Forestry. Forestry students studying approved curricula in accredited institutions are eligible to the Student Member grade during their junior and senior years. Finally, the grade of Associate Member is open to scientists and others working in forestry and closely allied fields.

The Society is divided into 21 regional Sections, which hold at least one, but usually more, meetings each year. Within the Sections are 70 Chapters which provide an interchange of ideas on a more local level. Functioning within the framework of the Society are 11 Divisions, each concerned with a technical phase of forestry: silviculture, private forestry, forest management, forest products, forest economics, education, public relations, range management, forest recreation, watershed management, and forest-wildlife management. These Divisions conduct projects and hold meetings.

Since its founding the Society has won general recognition as the national body which represents the profession of forestry in the United States, and as such is acknowledged as its spokesman. The Society is the sole accrediting agency for professional forestry education. Under its educational standards, 25 institutions offering instruction in forestry are now accredited. In 1948 the Society adopted a code of ethics for professional foresters.

Representatives of the Society serve in cooperative undertakings with numerous other professional and technical organizations, including the *AAAS*, the National Research Council, the Natural Resources Council of America, and the *AIBS*. Committees of the Society are functioning in such varied activities as international relations, tree nomenclature, civil service, grade standardization of forest planting stock, community forests, and development of fire protection equipment. Standing Committees on objectives and ethics insure the maintenance of professional standards. Headquarters of the Society of American Foresters is in the Mills Building, Washington 6, D. C.

SOCIETY FOR THE STUDY OF DEVELOPMENT AND GROWTH

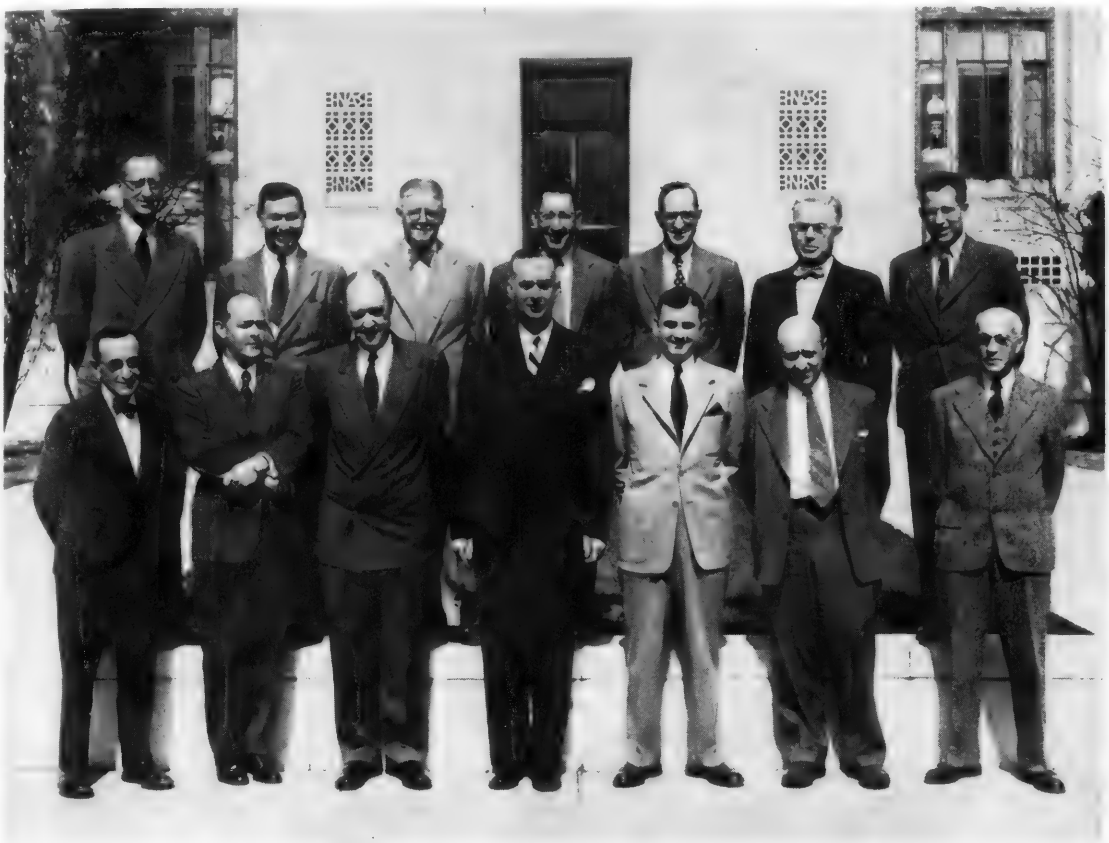
Total membership: 269. **Types of membership:** Regular. **Dues:** $3.50 per year (includes Symposium proceedings when published). **Journal:** None. **Officers:** President: Elmer G. Butler; Treasurer: Louis G. Nickell; Secretary: Richard H. Goodwin, Department of Botany, Connecticut College, New London, Connecticut.

The Society for the Study of Development and Growth was organized at a Symposium held at North Truro, Mass. in August, 1939. This symposium was arranged by a committee (N. J. Berrill, C. B. Davenport and D. M. Whitaker) appointed by the editors of the journal *Growth*, and was supported by grants from the Macy and Rockefeller Foundations. The Society was formed with the primary function of holding an annual symposium on problems of development and growth. The original Executive Committee, elected at the organizational meeting, consisted of Warren H. Lewis (President), Paul Weiss (Secretary), Leigh Hoadley (Treasurer), N. J. Berrill, Edmund W. Sinnott and Philip R. White. Symposia have been held yearly (with the exception of 1943 and 1944) since 1939, with the most recent one in 1951 at Smith College.

Only one type of membership exists, regular, and admission is dependent upon: (1) an interest in problems of growth in the broad sense, (2) the Ph.D. degree or its equivalent, (3) sponsorship by two members of the Society and (4) election by the Executive Committee. The annual dues of $3.50 include a copy of the Symposium proceedings, when published.

The Society has never carried on subsidiary activities, but the possibility of expanding the scope of the Society is now under consideration by the Executive Committee.

(Continued on page 33)



PARTICIPANTS, CONFERENCE ON BIOLOGICAL EDUCATION, NATIONAL ACADEMY OF SCIENCES-NATIONAL RESEARCH COUNCIL BUILDING, WASHINGTON, D. C., MARCH 10, 1953.

Left to right. Row 1: M. C. WINTERNITZ (Chairman, Division of Medical Sciences, National Research Council); PAUL WEISS (Chairman, Division of Biology and Agriculture, National Research Council); MERLE COULTER (Associate Dean, Division of Biological Sciences, University of Chicago); LEONARD CARMICHAEL (Secretary, Smithsonian Institution); HOWARD M. PHILLIPS (Dean of the Graduate School and Professor of Biology, Emory University); RALPH W. GERARD (Professor of Neurophysiology, Illinois Neuropsychiatric Institute); FERNANDUS PAYNE (Associate Director for Biological and Medical Sciences, National Science Foundation). Row 2: WALTER J. WILSON (Professor and Chairman, Department of Biology, Brown University); JOHN A. BEHNKE (Assistant Administrative Secretary, American Association for the Advancement of Science); RALPH E. CLELAND (Dean of the Graduate School and Head of the Department of Botany, Indiana University); SAMUEL L. MEYER (Executive Secretary, Division of Biology and Agriculture, National Research Council and Executive Director, American Institute of Biological Sciences); DAVID R. GODDARD (Professor and Chairman, Department of Botany, University of Pennsylvania); ERNEST V. HOLLIS (Associate Chief for Administration, Division of Higher Education, U. S. Office of Education); GEORGE W. NACE (Staff Assistant, Division of Biology and Agriculture, National Research Council).

The following Biological Societies will meet at the University of Wisconsin under AIBS auspices

American Bryological Society
American Fern Association
American Microscopical Society
American Phytopathological Society
American Society for Horticultural Science
American Soc. of Limnology & Oceanography
American Society of Naturalists
American Society of Parasitologists
American Society of Plant Physiologists
American Society of Plant Taxonomists
Biometric Society, ENAR
Botanical Society of America
Ecological Society of America
Mycological Society of America
Phycological Society of America
Potato Association of America
Sigma Delta Epsilon
Society for Industrial Microbiology
Society of Protozoologists
Society for the Study of Evolution

★

THE PROGRAM issue of the *AIBS Bulletin* (August 1953) will be mailed ONLY to members of those Member Societies that plan to meet at Madison. Members of Affiliate Societies and those Societies that do not belong to the AIBS but intend to meet at Madison will receive their programs at the registration desk. Extra copies will cost $1.00 each.

DEADLINES FOR PAPERS: All paper titles (and abstracts) should be in the hands of the individual Society Secretaries by **June 1st.** It would greatly facilitate the work of the Society Secretaries in arranging meeting sessions if all titles were submitted in the following form:

BRADIN, JOHN L. Jr. and ERNEST KUN. Tulane University Medical School, New Orleans, La. Studies on the Metabolism of Endamoeba histolytica. (Illustrated, 3¼ x 4) 15 mins.

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MEETING OF THE BIOLOGICAL SOCIETIES

Sponsored by

AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES

University of Wisconsin

MADISON, WISCONSIN

September 6-10, 1953

INFORMATION ON HOUSING

DORMITORY ACCOMMODATION: University Dormitories will be available for housing. Couples and families will be accommodated in hotels, motels and private homes near the campus.

DORMITORY ROOMS MAY BE OCCUPIED: Any time from noon on Sunday, September 6th until 10 a.m. on Friday, September 11th.

PRE- AND POST-MEETING HOUSING: Arrangements should be made through the Societies planning special forays and excursions.

COST OF ROOM AND MEALS PER PERSON IN DORMITORIES: Sunday evening to Thursday including breakfast: $21.50. Deductions for luncheons and banquets scheduled by Societies will be made. For those occupying dormitories for shorter periods some adjustment will be made.

RESERVATIONS: May be made from July 1st to September 5th. Payments may be made at check-in time in dormitories and by arrangement in off-campus housing.

HOTELS: Reservations may be made at the following Madison hotels: Loraine, Belmont, Park and Edgewater. Rates are $3.50 up. Rates at motels are $5.00 up.

ACKNOWLEDGMENT: Each advance dormitory reservation will be acknowledged by a postcard which should be presented at the registration desk in September. Registration will be in the Wisconsin Memorial Union, Langdon Street.

TO MAKE ADVANCE REGISTRATION: Please fill out the registration form below and mail to:

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Director, University Housing Bureau
434 Sterling Court
Madison 5, Wisconsin.

(PLEASE TYPE OR PRINT ALL INFORMATION)

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Title: ..... Institution: .....

Professional Address: .....

Full Names, Sex, Relationship of Members of My Party:

.....

.....

Arrival: By Train ☐ By Plane ☐ By Car ☐

Expected Time of Arrival: ..... (date, hour) Of Departure: ..... (date, hour)

Society Membership:

(1) .....

(2) .....

(3) .....

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KNOW YOUR SOCIETIES

(Continued from page 29)

AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS

Total membership: over 900. **Types of membership:** active, life, corresponding and patron. **Dues:** $6.00 per year in U. S. A.; $6.25 in Canada; $6.50 in other countries (includes journal). **Journal:** PLANT PHYSIOLOGY. **Officers:** President: D. I. Arnon; Vice-president: Folke Skoog; Secretary: A. S. Crafts, College of Agriculture, University of California, Davis, California.

With the rapid development of the biological sciences in the early years of the 20th century, plant physiologists, feeling that they had no direct and adequate means for contributing to the welfare of their science, proposed the inauguration of a separate society at the Chicago meeting of the *AAAS* in 1920. Plans were rejected at that time, but interest in such an organization continued to spread. Dr. R. B. Harvey of the University of Minnesota prepared a constitution and by-laws, and in 1924, an election was held. The first president was Dr. C. A. Shull. The first annual meeting was held in Washington, D. C. in December, 1924. In 1931, at New Orleans, the membership voted to incorporate under the laws of the District of Columbia and this was done on July 5, 1935. The first publication of the Society appeared in May 1924. The first editorial committee was selected in the following year and the publication of a journal initiated. Dr. C. A. Shull was appointed Editor-in-Chief and to his loyal efforts much of the success of the Society and its Journal are due. At the Kansas City meetings in 1925 another important feature of the Society was established—the Dr. Charles Reid Barnes annual life membership award. The first award was made at the Philadelphia meeting in 1926 to Dr. Burton E. Livingston of Johns Hopkins in recognition of his long services to plant physiology.

Because the year 1927 was the 250th anniversary of the birth of Stephen Hales, and the 200th anniversary of the publication of his book, "Vegetable Staticks," Dr. Shull planned a celebration at the Nashville, Tennessee meetings. Money was raised to establish a memorial to Hales in the form of an endowment to support the award of a prize. By the time of the meeting over $1000 had been contributed by eighty members. The first Hales prize was awarded in 1929 to Professor D. R. Hoagland of the University of California. Eleven awards have been made since that time and it has become the custom to make the award every other year. The Charles Reid Barnes awards were set up on a permanent basis in 1930 and 20 such awards have been made since that year. The year 1952 was designated a year of celebration of the birth of Julius von Sachs in 1832, and the seventh volume of *Plant Physiology* was dedicated to his memory.

From the start of its existence the Society has encouraged sectional organizations. At the annual meeting in 1933 the constitution was modified to permit organization of regional sections and the first such section, that of the New England states, was granted a charter at the Boston meeting. In 1935 the Western Section was given a charter, and in 1939 the Southern Section was authorized. Since then Illinois and Washington, D. C., have organized sections making a total of seven, four local and three regional.

Membership in the Society is open to "plant physiologists of all nations, and to all persons in sympathy with the purposes of this organization." The first patrons of the Society were elected at Atlantic City in 1936; their number has now increased to eight. There are eight life members. The Society, now in its 28th year, has grown to a membership of well over 900. It is in a healthy financial condition, and it is heartily supported by plant physiologists throughout the world. Policies inaugurated by the founders have in no small way contributed to this strength.

ECOLOGICAL SOCIETY OF AMERICA

Total membership: 926. **Types of membership:** associate, contributing, active and sustaining. **Dues:** Associate Membership: $2.00 (includes BULLETIN); Contributing Membership: $2.00 or more (includes BULLETIN); Active Membership: $7.50 (includes BULLETIN and ECOLOGY); Sustaining Membership: $12.50 (includes BULLETIN, ECOLOGY and ECOLOGICAL MONOGRAPHS). **Journals:** ECOLOGY, ECOLOGICAL MONOGRAPHS and the BULLETIN. **Officers:** President: Lee R. Dice; Vice-president: Stanley A. Cain; Treasurer: Frederick H. Test; Secretary: Murray F. Buell, Dept. of Botany, Rutgers University, New Brunswick, N. J.

The Ecological Society of America was founded on December 28, 1915, at Columbus, Ohio. Its stated purposes are "to promote the scientific study of organisms in relation to their environment, both as individuals and as members of populations and communities, and to facilitate an exchange of ideas among those interested in ecology." Action leading to the organization of the Society began with a letter from R. H. Wolcott to Victor E. Shelford, suggesting the organization of a society of ecologists to provide for adequate meetings and for summer field trips. The proposal was enthusiastically supported by V. E. Shelford and H. C. Cowles, and through their efforts an organizing committee was formed in 1914. The following year saw the accomplishment of the idea; the first president was Victor E. Shelford, Vice-President, William M. Wheeler and Secretary-Treasurer, Forrest Shreve. To Forrest Shreve and Asa O. Weese, who succeeded him in 1920, much credit is due for their long and generous service which did much to maintain continuity and promote the development of the Society.

The Society publishes three journals. *Ecology* is a quarterly journal for plant and animal ecology, which was begun with the aid of the Brooklyn Botanic Garden in 1920. Barrington Moore was the first editor. The journal was published by the Brooklyn Botanic Garden until 1948 when it was transferred to Duke University Press. *Ecological Monographs* is a quarterly journal for longer papers on plant and animal ecology. It was founded in 1931 with A. S. Pearse as first editor. It also is published by the Duke University Press. The *Bulletin* is published quarterly by the Secretary. It contains programs of meetings with abstracts of papers presented, proceedings of the annual business meeting, lists of members and committee chairmen and reports of committee activities.

Membership in the Society is open to all "persons and organizations interested in ecology and in the promotion of ecological research." Recommendation by two members is necessary. Contributing members may designate the function of the Society to which their contribution is to be devoted.

The annual meetings of the Society are held regularly with the *AIBS* and its affiliated societies. In addition summer meetings, regional in nature and including field trips as well as the presentation of papers, are an important and characteristic feature of Society activities. The annual meeting of the Western Section is held in conjunction with the Pacific Division of the *AAAS*.

A prize of one hundred dollars, known as the George Mercer Award, is granted annually to a young ecologist for the best paper published in a journal of a scientific or technical society in the U.S. or Canada during the preceding two years. This award is the gift of Preston Laboratories, Butler, Pennsylvania.

Other activities of the Society are carried on by five standing committees and various special ones. At least two of these committees work with the Natural Resources Council of America.

AMERICAN SOCIETY OF MAMMALOGISTS

Total Membership: 1,370. **Types of Membership:** active, life, honorary and patron. **Dues:** $4.00 per year for active members; $100.00 for life members; $1,000.00 for patrons. (includes journal). **Journal:** JOURNAL OF MAMMALOGY. **Officers:** President: William J. Hamilton, Jr.; Vice-presidents: William H. Burt and William B. Davis; Treasurer: Viola S. Schantz; Recording secretary: Randolph L. Peterson; Corresponding secretary: Keith R. Kelson, Museum of Natural History, University of Kansas, Lawrence, Kansas.

Founded in 1919, the American Society of Mammalogists was organized to promote the interests of mammalogy by holding annual meetings for the dissemination of knowledge, publishing a journal, aiding research and all other activities deemed expedient. All leaders in the field of mammalogy and most of those in wildlife management and conservation are active members of this Society. Young mammalogists are encouraged to present papers at the annual meetings and several honoraria are offered each year to students for outstanding papers.

The *Journal of Mammalogy*, published quarterly, is now in its 33rd volume. The *Journal* has become indispensable to all professional mammalogists, naturalists, wildlife managers, ecologists, conservationists, sportsmen and those interested in animals. It is the only journal written in the English langauge which is entirely devoted to mammalogy.

Nomination for membership in this Society is dependent upon an active interest in mammalogy and recommendation by two members. Annual members pay dues of $4.00 per year; life members make a payment of $100.00 at one time or in four payments of $25.00 each in four consecutive years. Honorary membership is bestowed upon persons in recognition of distinguished services to mammalogy. A person is elected a patron of the Society upon payment of $1,000. All members in good standing receive the *Journal of Mammalogy*.

Meetings of the Society are usually held at some prominent museum or in some suitable national park or field laboratory.

AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY

Total membership: approximately 1,100. **Types of membership:** active. **Dues:** $1.00 per year (journal not included). **Journal:** ANNUAL JOURNAL (to begin in 1952). **Officers:** President: Frederick E. J. Fry; Secretary-treasurer: Bostwick H. Ketchum, Woods Hole Oceanographic Institute, Woods Hole, Mass.

The American Society of Limnology and Oceanography began in 1935 as the Limnological Society of America. The objective of this parent organization was the promotion of limnology, the field of science which was understood to include all inland water. In 1948 the name was changed to its present one, and the interests of the Society widened to include all waters, inland and marine.

Membership in the Society is open to anyone actively interested in any aspects of limnology or oceanography. Candidates are nominated by two members and accepted for membership by the officers of the Society. Annual meetings are held and research papers read during the sessions. An *Annual Journal* is under preparation with the first issue to contain the papers presented at the 1952 meeting. The dues do not cover receipt of this journal. However, each new publication, or revision of an existing publication, is distributed free to each member. At the present time the Society has a list of twenty publications.

AMERICAN SOCIETY OF NATURALISTS

Total membership: 629. **Types of membership:** active, emeritus, honorary. **Dues:** $5.00 ($3.50 of which is for the journal) for active membership. **Journal:** THE AMERICAN NATURALIST. **Officers:** President: L. J. Stadler; Vice-president: Alexander Hollaender; Treasurer: Donald Poulson; Secretary: Warren P. Spencer, Wooster College, Wooster, Ohio.

The first meeting of the American Society of Naturalists was held in Springfield, Mass., April 10, 1883. In the past, the interest of the Society was focused chiefly on evolution and the subsidiary aspects of biology. This interest remains central but not exclusive. The Society today is particularly concerned with the encouragement of the broad philosophical relationships of all the biological sciences. This is implemented chiefly by organizing symposia upon general subjects and fields of overlapping interest and by editing *The American Naturalist* as an organ of the Society.

Membership in the Society has always been considered an honor to be limited to those who have demonstrated continued research productiveness of a high order in some branch of biological science, combined with a philosophical interest extending beyond a single research field. Nominations of candidates are made by members of the Society, considered by the Executive Board of the Society, and elected by vote of the members at the annual meeting. Active membership carries dues of $5.00 per year. Active members automatically revert upon retirement from professional duties, to the status of emeritus, which involves release from the payment of dues. Honorary members (limited to ten) are elected upon recommendations of the executive committee by a two-third vote of the members present at any meeting of the Society. Honorary members do not pay dues. Both honorary and emeritus members may subscribe to the journal at the same rate as active members ($3.50).

In September 1951, there were 463 active, 156 emeritus and 10 honorary members in the Society. As a member of the *AIBS* the Society now sponsors a symposium at the fall meeting of this organization, as well as co-sponsoring a symposium at the December meetings of the *AAAS*.

SOCIETY FOR THE STUDY OF EVOLUTION

Total membership: 928. **Types of membership:** member, sustaining member, patron. **Dues:** $5.00 per year for Members; $10.00 per year for Sustaining Members; $1,000 (single contribution) for Patrons. **Journal:** EVOLUTION. **Officers:** President: Alfred S. Romer; Vice-presidents: Adriano Buzatti-Traverso, William M. Hiesey, Carl L. Hubbs; Treasurer: C. M. Bogert; Secretary: Harlan Lewis, Department of Botany, University of California, Los Angeles 24, Calif.

The Society for the Study of Evolution had its origin in an American Society for the Study of Speciation, organized by Dr. Alfred E. Emerson in 1939 at the suggestion of Julian Huxley, as a counterpart of the British society of the same name. In 1946, at the St. Louis meetings of the *AAAS*, the present Society for the Study of Evolution was founded with the support and collaboration of the members of the Committee on Common Problems of Genetics, Paleontology and Systematics, organized in 1943 by Professor Walter H. Bucher, under the auspices of the National Research Council. The following year, in 1947, the Society journal, *Evolution*, was started with the aid of a grant from the American Philosophical Society.

No special standards of admission exist; an interest on the part of the applicant and his willingness to pay the annual membership dues are the qualifications necessary. Three types of membership are available; regular members, sustaining members and patrons who make a single contribution of $1,000. The annual dues include a subscription to *Evolution*, which is published quarterly.

SOCIETY FOR INDUSTRIAL MICROBIOLOGY

Total membership: 231. **Types of membership:** active. **Dues:** $2.00 per year (for 1952). **Officers:** President: Benjamin Duggar; Vice-president: Kenneth B. Raper; Secretary-Treasurer: C. L. Porter, Department of Biological Sciences, Purdue University, West Lafayette, Indiana.

This Society was established on December 29, 1949. Its objectives cover the field of microbiological relations of industrial materials and processes, comprising the areas of deterioration and fermentation, and including antibiotics.

All persons interested in biological research are eligible to membership. The present membership includes people occupied with research, application, teaching and administration, whether they are professional biologists, chemists, engineers, or persons with other scientific backgrounds.

Membership in the Society guarantees the receipt of newsletters, announcements, and abstracts of papers presented at national meetings.

SOCIETY OF AMERICAN BACTERIOLOGISTS

Total membership: 4437. **Types of Membership:** active, honorary, corresponding, sustaining, emeritus. **Dues:** $9.00 per year for active members. **Journals:** JOURNAL OF BACTERIOLOGY, BACTERIOLOGICAL REVIEWS, NEWSLETTER, APPLIED MICROBIOLOGY. **Officers:** President: R. J. Dubos. Vice-President: G. M. Dack. Secretary-Treasurer: H. W. Scherp, University of Rochester, Rochester, N. Y.

At Yale University, New Haven, Conn. on December 29, 1899 the Society of American Bacteriologists was formally organized, a constitution adopted, officers elected and a session of twenty-six papers held. The objectives of the Society are "to promote scientific knowledge of bacteriology and related subjects through discussions, reports and publications, to stimulate scientific investigations and their applications, to plan, organize and administer projects for the advancement of knowledge in this field, and to improve professional qualifications." Any person interested in the objectives of the Society is eligible for membership.

At the time of organization two classes of membership were established, active and honorary. Since that time nineteen eminent investigators have been recognized for their contributions to the advancement of microbiology by honorary membership. The class of corresponding members was introduced in 1912. Sustaining membership was initiated in 1924 and today over 100 organizations, research and industrial, subscribe to the work of the Society in this manner. In 1946 the class of emeritus was established.

Twenty-eight local branches of the Society have been formed. The Golden Jubilee Meeting of the Society was held in 1950 in Baltimore. Since 1947 a feature of the General Meetings has been an Annual Lecture named in honor of one or more distinguished investigators in microbiology.

The *Journal of Bacteriology* was the first publication of the Society. It was begun in 1916 as a bimonthly and has continued so. *Abstracts of Bacteriology* was begun in 1917 and continued until 1925 when it merged with *Biological Abstracts* as Section C, Abstracts of Microbiology, Immunology and Parasitology. Next in order of seniority of the Society's publications is the *Newsletter*, which first appeared in 1936. *Bacteriological Reviews* followed the *Newsletter* in 1937. Recently the Society undertook the publication of a new journal, *Applied Microbiology*.

The Society has shared in the management of the American Type Culture Collection since 1925. It sponsored the International Microbiological Congress in 1939. It provides a Placement Bureau as a service to young microbiologists; and it works towards the improvement of education through a standing committee on Teaching and another on Visual Instruction in Microbiology.

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